

LIST OF HEMIPTERA OF THE REGION WEST OF THE MISSISSIPPI RIVER, INCLUDING THOSE COL- LECTED DURING THE HAYDEN EXPLORATIONS OF 1873.

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ORDER HEMIPTERA.

Larva and nymph active, generally resembling the adult insect. Head set into the pronotum (in *Coriside* overlapping it anteriorly), provided with a stiff, jointed beak of three to four joints, inclosing four bristle-like sucking tubes. Wings four (entirely absent from a few species); the wing-covers either horizontal or declivous when at rest, generally opaque and thicker at base, with the apical portion membranous.

SUBORDER HETEROPTERA.

Rostrum attached beneath the anterior extremity of the head; the front generally situated superiorly; the hemelytra heteronomous, overlapping at tip.

DIVISION GYMNO CERATA.

Antennæ free, not concealed beneath the head, 3- to 5-jointed (in a few 13-jointed). Legs adapted for creeping, running, leaping, balancing in flight, or for skimming over the surface of the water.

SUPERFAMILY SCUTELLEROIDEA.

Scutellum covering nearly the whole tergum; orbicular.

FAMILY CORIMELÆNIDÆ.

CORIMELÆNA, White.

1. *C. nitiduloides*.

Cimex nitiduloides, Wolff., Icones Cimicum, 98, pl. x, fig. 92.

Odontoscelis nitiduloides, H. Schf., Wanz. Ins. v, 12, tab. 149, fig. 47.

Corimelæna nitiduloides, Dallas, Brit. Mus. List Hemipt. i, 56, No. 2.

Obtained above timber-line in the mountains of Colorado, by Lieut. W. L. Carpenter. Although found at such a considerable altitude, it offers no important differences from the specimens common to Kansas, Texas, Missouri, and the Atlantic region.

2. *C. ciliata*. New sp.

Deep bluish-black, short and broad; margins of the head, pronotum, and abdomen ciliated with remote long hairs. Head large, broadly depressed in front; the anterior margin broadly rounded; punctures fine and close; the base almost impunctured; the edges narrowly recurved; antennæ rufo-piceous; rostrum reaching between the middle coxæ. Pronotum broad, not very convex; finely punctured; the punctures becoming deeper and denser at the sides; the lateral margins but moderately rounded; edges recurved; the surface a little uneven in places; intrahumeral impressions shallow, long; the posterior margin moderately elevated above the base of the scutellum. Scutellum moderately convex, not very high, broadly rounded; the sides near the base rather strongly, broadly sinuated; surface finely, distinctly punctured; the punctures coarser and denser each side at base. Corium moderately wide, very bluntly oblique at tip, closely punctured, except upon the inner margin, and with three impressed striæ, which are confluent at tip. Beneath finely punctured. Coxæ and legs rufo-piceous; tarsi yellowish.

Length, 5 millimeters. Breadth of pronotum, 3 millimeters.

Inhabits California (Dr. LeConte); San Francisco (James Behrens); Oregon (Dr. Horn).

3. *C. cyanea*. New sp.

Bright steel-blue, polished; in form similar to *C. ciliata*. Head broad, finely, densely, confluent punctured; each side faintly sinuated; the anterior margin and tylus very narrowly recurved; each side between the eye and ocellus is a short distinct sulcus; antennæ and rostrum piceous, the latter scarcely reaching the middle coxæ. Pronotum much broader than long, moderately convex; disk finely punctured, but each side of it coarsely punctured; humeri moderately high, a little produced backward; the adjoining impressions long, rather shallow, and with a single indistinct stria; the posterior margin but little higher than the scutellum. Scutellum a little purplish; each side of disk uneven and obsolete ridged; punctures numerous, confluent each side and behind; the lateral edge moderately waved, a little sinuated at base. Corium broad, approximately bistriate, and, excepting the inner smooth margin, densely punctured. Pectus black, finely punctured. Venter finely, closely punctured, polished, steel-blue. Legs blue-black; tarsi testaceous.

Length, 5 millimeters. Width of pronotum, $3\frac{1}{4}$ millimeters.

Inhabits California (Dr. Horn); Arizona (J. Behrens).

4. *C. cærulescens*.

Thyreocoris cærulescens, Stål, Hemipt. Mex. Stettiner Ent. Zeit. xxiii, 94, No. 42.

Inhabits Mexico; Arizona (Dr. Horn); California (J. Behrens); Kansas; Colorado (J. Ridding).

5. *C. anthracina*. New sp.

Broad ovate, polished, intensely black, coarsely, in part confluent, deeply punctured; in form similar to *C. lateralis*, Fab. Head short, subtriangular, slightly convex, sinuated each side, subtruncated in front; surface coarsely, confluent punctured; the extreme base smooth and impunctured; tylus scarcely longer than the lateral lobes; lateral edges acute; antennæ pale rufo-piceous; the second joint less than one third as long as the third and not thicker than the slender base of that joint;

rostrum reaching to the posterior line of the intermediate coxæ. Pronotum symmetrically convex; the lateral margins obliquely arcuated; length a little more than one-half of the breadth of base; surface coarsely, closely punctured, here and there with minute punctures between, on the sides more coarsely, densely, and confluent punctured; on the base a little obsoletely punctured; posterior margin behind the sinus a little flattened; pectoral areas opaque black, confluent punctured; the meso- and metapleural pieces longitudinally wrinkled. Legs piceous-black; the femora obsoletely punctately-indented; tarsi testaceous. Scutellum short and broad, convex, bluntly rounded at tip; the sides at base contracted and sinuated, and bounded there by a smooth, slender frenum; the surface less densely and more obsoletely punctured than the pronotum, and still more finely and remotely at the apex; sides at base coarsely, densely, confluent punctured. Corium about two-thirds the length of the scutellum, of medium width, and blunt at tip, distinctly and not very coarsely punctured, more coarsely and closely at base. Venter convex, very highly polished, remotely and less distinctly punctured on the disk, but very distinctly, closely, and more coarsely so on the sides, and posteriorly. ♀.

Length, $4\frac{3}{4}$ millimeters. Width of pronotum, 3 millimeters.

Inhabits California (James Behrens).

6. *C. extensa*.

Corimelena extensa, Uhler, Proc. Amer. Ent. Soc. 1863, 155.

Inhabits Dakota (Mr. Pearsall); Oregon and Arizona (Dr. Horn); California (J. Behrens).

7. *C. lateralis*.

Tetyra lateralis, Fab., Syst. Rhyng. 142, No. 63.

Odontoscelis lateralis, H. Schf., Wauz. Ins. v, tab. 149, fig. 473.

Corimelena lateralis, Dallas, Brit. Mus. List Hemipt. i, 59, No. 11.

A single specimen of the variety with very narrow, pale costal margin, collected in Kansas, was given to me by Mr. H. Ulke. It abounds on the prairies of Illinois, and is common in Michigan, New York, Massachusetts, Rhode Island, Pennsylvania, and farther south. In Maryland, specimens sometimes occur which are destitute of the lateral pale margin; and near Baltimore may be found all the varieties between the extremes of color and punctuation.

8. *C. pulicaria*.

Odontoscelis pulicarius, Germar, Zeits. i, 39, No. 6.

Corimelena pulicaria, Dallas, Brit. Mus. List Hemipt. i, 59, No. 10.

Inhabits Kansas, Dakota, Minnesota, and is distributed over the whole length of Atlantic North America from Quebec to Florida, and westward to Louisiana and Texas.

9. *C. ? albipennis*.

Thyreocoris albipennis, Say, Heteropt. New Harmony, 2, No. 2.

"Oval, pale fulvous. Pronotum blackish before and on each side; the lateral margin white. Scutellum each side at base with a small black spot. Hemelytra white, with a small rufous spot. Beneath piceous; the lateral margins of the pectus white."

Length less than one-fifth of an inch.

Obtained by Mr. Say in Nebraska near the Missouri River.

The specimen described by Mr. Say was a mutilated one, without a head. It may not belong to the genus to which it is here referred; but as it has been placed by its describer in *Thyreocoris*, it must be at least somewhat related to the genus *Corimelana*.

The description is copied here with a view to call the attention of collectors to this remarkable insect, and to enlist those who are favorably situated to endeavor to recover it for the advancement of our knowledge in this branch of modern science.

FAMILY PACHYCORIDÆ.

HOMÆMUS, Dallas.

1. *H. aneifrons*.

Scutellera aneifrons, Say, Long's Exped. appendix, 299, No. 2.

Pachycoris exilis, H. Schf., Wanz. Ins. iv, tab. 110, fig. 346.

Inhabits Colorado, and the Atlantic region generally from Canada to Virginia. It occurs but rarely in Maryland, and seems to affect the colder parts of the State, where the vegetation is from a week to ten days later in developing than in the lowlands of the warm areas.

2. *H. bijugis*.

Homæmus bijugis, Uhler, Hayden's Geol. Surv. of Montana, 393.

Collected by the survey of 1871 in Colorado, and during 1873 by Lieutenant Carpenter, from the foot-hills of Colorado, in September; vicinity of Denver City, by B. H. Smith; also received from Dakota and Nebraska.

3. *H. consors*. New sp.

Testaceo-fulvous; pale yellowish beneath; more acute at both ends than *H. aneifrons*. Head more triangular and narrower, more finely punctured, sparingly pubescent, less convex; the surface brassy-black, greenish at base; the lateral submargin with a narrow yellow line extending to the apical margin each side of tylus; the lateral margins distinctly sinuated; antennæ and rostrum testaceous, with the tips fuscous. Pronotum testaceous, tinged with brown, finely and obsoletely punctured; the lateral margins rather broadly compressed; each side of disk with a forked fuscous ray, the ends diverging posteriorly; exterior to this anteriorly is a short fuscous line, on the middle a fainter fuscous line, and a similar one along the submargin; the spot in the anterior angles very distinct. Scutellum very much narrowed obliquely posteriorly, very finely, rather obsoletely punctured; on the base is a trifarious black spot, the middle end of which runs to a point a little way back; the lateral ends indistinctly connected with a gradually narrowed ray, which runs obliquely backward; each side of base with pale streaks, exterior to which is an angular, fuscous spot; on the middle is an interrupted pale line; and on the tip an oblong pale spot, which narrows to a point anteriorly, and placed on a fuscous cloud. Venter pale, remotely, finely punctured; the punctures denser and finer on the sides; the sixth segment strongly carinated on the posterior margin; connexivum superiorly, with a black spot on each segment.

AULACOSTETHUS, Uhler.

A. simulans. New sp.

Oval; moderately long; convex in both diameters; testaceous; clouded with ochreous; densely, minutely punctured with fuscous. Head ochreous, confluent, and more coarsely punctured; the lateral edge inferiorly and the tylus at tip smooth, yellow; lateral margins deeply sinuated;

below this the cheeks deeply excavated and coarsely punctured with fuscous; the lower cheeks yellow, smooth inferiorly; above this with remote, deeply-sunken, coarse, rufous punctures; antennæ yellow; the apex of basal joint on the upper side with a fuscous ring; the second and third joints with a fuscous longitudinal line both above and below; the basal joint stouter, subequal to the second; the third a little shorter; fourth and fifth lost from the specimens. Bucculæ punctured with fuscous; rostrum yellow; labrum with a black streak; the third and fourth joints tinged with piceous; the apex of the latter almost black. Pronotum dull testaceous, ochreous anteriorly, rather remotely, minutely punctured with fuscous; the anterior slope steeply convex; the lateral margins convexly arcuated; humeral angles bluntly rounded; the posterior angles still more so; the disk with about four series of transverse, interrupted black lines; the anterior margin indented each side. Pectus testaceous, remotely punctured with rufous, punctured anteriorly more minutely in patches with fuscous, and more coarsely posteriorly; the outer extremity of the duct fuscous, and with a large deep puncture there. Legs short, stout, yellow; the femora and tibiæ dotted with fuscous, the dots coalescing on the middle of the posterior and intermediate femora, so as to form a ring; tarsi at tip tinged with piceous. Scutellum rather suddenly convexed at base; lateral margins parallel, obliquely narrowed toward the tip; the tip truncated, with the angles rounded, ochreous; base of the convexity having a large, pale-yellow crescent with the points directed backward, and slenderly and faintly continued backward to behind the middle of the lateral margins; anterior to this continuation each side is a large fuscous cloud, which is invaded on the outside posteriorly by a pale angular spot, and at base exteriorly by a darker patch, which runs back to the angular spot; at base each side of the lunule are several short, transverse black lines, and more exteriorly some black points; posterior surface reticulated with black; at the apex a transverse, oval, yellow spot, with a black dot on the middle posteriorly; the anterior edge of the spot bounded with black, and with a slender black line running forward from it. Venter pale, dull testaceous, punctured remotely with red, and with denser fuscous punctures in a broad band each side, upon which is a series of five spots composed of denser black punctures; the stigmal orifices placed on small tubercles; connexivum with spots of crowded fuscous punctures near the apex of the segments; the postero-lateral angles slightly produced; last ventral segment elevated and produced in a truncated plate over the base of the first genital segment. ♀.

Length, 9 millimeters. Width of pronotum, $5\frac{1}{3}$ millimeters.

Inhabits the vicinity of San Francisco in May (Henry Edwards).

PACHYCORIS, Burm.

P. Fabricii.

Cimex Fabricii, Linn., Mantis. Ins. 534.

Pachycoris Fabricii, H. Schf., Wanz. Ins. iv, 6, fig. 349.

Pachycoris Stalii, Uhler, Proc. Entom. Soc. Phila. ii, 159.

Inhabits California, Mexico, &c. It will no doubt hereafter be collected in Arizona and New Mexico.

SPHYROCORIS, Mayr.

S. obliquus.

Pachycoris obliquus, Germar, Zeits. i, 94, No. 24.

Sphyracoris obliquus, Mayr, Novara Reise, Hem. 26.

Inhabits Arizona; but has been previously known only from the West Indies and Mexico.

ZOPHOESSA, Dallas.

1. *Z. consocia*. New sp.

Form of *Z. porosa*, Germar; brownish-black, with a brassy tinge; minutely sericeous pubescent. Head more broadly, less abruptly sinuated each side; antennæ piceous; the base and tip of the second, third, and fourth joints, and the basal joint entirely, testaceous; the basal and apical subequal, longer than the others; the third shortest; rostrum pale yellowish, invaded with piceous on the basal, third, and apical joints. Pronotum narrowly, transversely, but deeply and abruptly, incised; anterior to this is another incised line, which does not reach the lateral margins; the lateral margin less deeply sinuated than in *Z. porosa*. Corium testaceous at tip. Tarsi testaceous; the last joint and nails piceous. Scutellum widened posteriorly, crossed by several impressed lines between the base and the middle; the surface broken into reticulated ridges of more or less distinctness; on the base each side of the middle is an elongated spot; the middle line interruptedly, and several small, irregular spots at tip, yellow; the apical margin bluntly, a little obliquely, rounded. Yellow spots of the edge of connexivum small. ♀.

Length, 5 millimeters. Width of pronotum, scant 3 millimeters.

Inhabits Arizona (John Akhurst).

The surface is closely and deeply punctured, as in the other species.

2. *Z. porosa*.

Pachycoris porosus, Germar, Zeits. i, 108, No. 56.

Zophoessa porosa, Dallas, Brit. Mus. List Hemipt. i, 43.

Inhabits California, Texas, Florida, &c.

SUBFAMILY EURYGASTRINA.

EURYGASTER, Lap.

E. alternatus.

Tetyra alternata, Say, Amer. Ent. tab. iii, 43, fig. 3.

Eurygaster alternatus, Dallas, Brit. Mus. List Hemipt. i, 47, No. 1.

Inhabits the hills of Colorado in September. Collected by Lieut. W. L. Carpenter. It is quite common in many parts of the cold division of the north-temperate zone, extending quite across the continent from Maine to Puget Sound, and south to near San Francisco. On the eastern side of the continent, it has not yet been captured as far south as Maryland.

SUBFAMILY PODOPIA.

PODOPS, Lap.

P. dubius.

Scutellera dubia, Pal., Beauv. Ins. Afr. et Amer. 33, pl. 5, fig. 6.

Tetyra cinctipes, Say, Amer. Ent. iii, tab. 43, fig. 2.

Inhabits Nebraska, Minnesota, Texas, and generally throughout the Atlantic region from Massachusetts to Florida.

PHIMODERA, Germ.

P. torpida.

Phimodera torpida, Walker, Brit. Mus. Catal. of Hemipt. pt. i, 75, No. 4.

Black; dull; elliptical; slightly convex; minutely punctured. Head subquadrate, less than half the breadth of the pronotum; the tylus

hardly extending beyond the lateral lobes. Eyes rather prominent. Pronotum with a transverse furrow, in front of which it is transversely rugulose; on the middle with a very short, whitish, longitudinal line. Scutellum covering the whole of the tergum, and almost the whole of the hemelytra, with three longitudinal lines, the middle one extending along the whole length, the other two very short, extending from the fore border; each with a short, oblique ridge near its outer side.

Length, 7 millimeters.

One specimen from Colorado, collected by B. H. Smith. The original type came from the region of the Saskatchewan in British America.

The description is added in this place to call the attention of western collectors to this interesting and peculiar species, with a view to obtaining a series of both sexes for the better elucidation of its affinities, and to establish its position in the group.

In Europe, this genus is represented by two species—one in France and Hungary, and the other in Sweden and Russia; but this is the first time that we have had evidence of the presence of one of its representatives on this western continent.

SUPERFAMILY PENTATOMOIDEA.

Scutellum much narrower than the abdomen, contracted behind the middle, usually triangular, having a frænum running from the base along the sides.

FAMILY CYDNIDÆ.

CYRTOMENUS, Am. & Serv.

C. mutabilis.

Cydnus mutabilis, Perty, Delectus Anim. Artic. 33, fig. 6.

Cyrtomenus castaneus, Am. & Serv., Hemipt. 91, No. 1.

Inhabits Arizona, Mexico, Texas, California, Brazil, Florida, Georgia.

PANGÆUS, Stål.

1. *P. bilineatus.*

Cydnus bilineatus, Say, Journ. Acad. Phila. iv, 315, No. 1.

Ethus bilineatus, Dallas, Brit. Mus. List Hemipt. i, 119, No. 20.

Inhabits Indian Territory, Kansas, Texas, and Eastern Temperate North America as far south as Central Florida.

2. *P. piceatus.*

Pangæus piceatus, Stål, Hemipt. Mex. Stettiner Entom. Zeit. xxiii, 96, No. 47.

Inhabits New Mexico, Texas, and Mexico.

MICROPORUS, Uhler.

Aspect of *Cydnus*; hairy and opaque, polished, oval, moderately convex. Head broadly rounded, feebly convex; the tylus shorter than the lateral lobes; lateral submargins closely armed with linear, stout teeth, fringed with long, stiff hairs; the edge sharp, recurved, but broad beneath. Antennæ, basal joint barely reaching the tip of head; second very short, a little more than one-half the length of the third; third more slender, fusiform; shorter than the basal, but about of the same

length as the fourth; fourth and fifth stouter, rounded at each end, subequal. Rostrum reaching between the intermediate coxæ; second joint longest; third and fourth subequal, a little shorter than the basal one; bucculæ narrow, sublinear. Pronotum transverse, obsoletely transversely impressed; surface curving uniformly with the head; the anterior angles bluntly rounded; the lateral margins fringed with long ciliæ. Anterior femora compressed; armed with very stout spines on the outer and inner edges; those of the tip longest. Odoriferous canal placed inwardly, very short, spoon-shaped, scooped out. Scutellum about two-thirds as long as the abdomen, bluntly triangular, bluntly rounded at tip, the apex a little bent down. Corium short and wide, the outer angle produced backward; embolium long, grooved quite, or almost, throughout. Outer margins of the venter compressed.

1. *M. obliquus*.

Microporus obliquus, Uhler, Hayden's Survey of Montana, 394.

Inhabits the vicinity of Ogden, Utah; also in Arizona (Dr. George Horn).

2. *M. testudinatus*. New sp.

Ovate, broadly rounded, more convex than in *M. obliquus*. Head convexly declining, conforming to the curve of the pronotum; the anterior margin broadly recurved and rounded, feebly emarginated in front; the submargin with long setæ and close stout spines, of which two are on the tip of the tylus; surface smooth, polished, impunctured; near the eye is a sunken point, and running obliquely forward each side from the tylus is an impressed line; tylus shorter than the lateral lobes; the latter bluntly rounded and obsoletely wrinkled; antennæ pale ferruginous; the second joint slender, much the shortest, cylindrical; the third, fourth, and fifth subequal in length; rostrum reaching between the intermediate coxæ, pale ferruginous; the third and fourth joints subequal, together longer than the second. Pronotum transverse, in front much narrower than behind; the anterior margin deeply sunken to receive the head; the angles moderately protracted forward, bluntly rounded; the lateral margin steeply declining, the edge very thin, convexly arcuated, closely fringed with long ferruginous hairs; posterior margin feebly rounded; the exterior angles slightly rounded, rectangular; surface smooth, polished, obsoletely punctured each side and behind the middle; the anterior lobe smoother, and with a very few minute punctures; behind each eye is a sunken point, and across the middle a series of six similar points. Pectus pale piceous; the disks of pleural pieces darker; sides of prosternum a little raised into slender, slightly-rounded lobes. Legs pale ferruginous, more or less tinged with piceous; the spines blackish-piceous; femora compressed, having two rows of punctures carrying ciliæ; anterior tibæ compressed, the spines of outer margin longer; the exterior submargin with a slender groove bearing coarse punctures; the posterior tibæ long, feebly curved, hardly thicker toward the end; tarsi slender, yellow, the intermediate joint small. Scutellum very broad, short, polished, convex, remotely, finely, rather obsoletely punctured; the sides not distinctly sinuated; the tip broad, bluntly rounded. Corium short, much wider behind; the costal margin very convexly arcuated, moderately uniformly, deeply punctured; the sutures punctured in rows; the subcostal linear impression continued from the base to beyond the middle, and coarsely punctured; posterior margin bluntly oblique, a little bluntly produced at the outer angle; mem-

brane short, broadly rounded, pale brownish. Venter very convex, polished, ciliated across the segments, and with long hairs on the outer edge of the connexivum; the lateral and posterior surface minutely punctured.

Length, $4\frac{1}{2}$ millimeters. Width of pronotum, $2\frac{1}{2}$ millimeters. Width of venter, 3 millimeters.

Inhabits California (James Behrens).

In one specimen, there is a transverse, impressed line placed a little before the posterior margin of the pronotum; in another, this line is hardly visible.

TRICHOCORIS, Uhler.

Oval, moderately convex above, more or less hirsute, very convex beneath. Head bluntly semicircular, deeply seated in the pronotum; the anterior angles of the pronotum protracted as far as the middle of the eyes. Eyes sunk to the middle in the margin of the head; the ocelli placed not far from them, and on a line with their base. Submargin of the clypeus with erect, stout, short spines; the margin a little recurved; tylus broad, flat, not narrowed anteriorly, defined almost to the base of the cranium; the lateral lobes longer, but curving in front of it. Rostrum reaching beyond the anterior coxæ; the second joint longest, but not as long as the third and fourth united, compressed; the third and fourth subequal. Antennæ moderately stout; basal joint subcylindrical, slightly curved, as long as the fifth; second shortest; third somewhat longer, conical at base; the fourth and fifth equal, stouter, fusiform; the latter acute at tip. Pronotum transverse, trapezoidal; the lateral margins obliquely narrowing anteriorly, and gently curved. Odoriferous canal running outward almost half-way to the lateral margin, slenderly sulcated, situated rather remotely from the suture, becoming slightly tubular at the outer end; the plate on which it is placed narrow, acutely triangular beyond the osteole. Scutellum about two-thirds as long as the abdomen, broad and long, bluntly rounded at tip, the base convexly prominent, the sides not sinuated. Hemelytra broad, a little wider than the abdomen, shorter than the scutellum, the costal margin broadly arcuated; the posterior margin of the corium bluntly oblique, a little sinuated; membrane obliquely declining. Legs stout; femora compressed, ciliated, expanded before the tip; the anterior tibiæ a little less compressed than in *Cyrtomenus*, subtriquetral when seen from above; the long, stout spines arranged in a whorl at tip; posterior tibiæ much longer than the intermediate. Venter obesely convex; the segments fringed with long, remote ciliæ; the lateral margins densely set with long hairs.

T. conformis. New sp.

Moderately broad-oval, blackish-piceous, densely clothed exteriorly, and less densely superficially, with long ferruginous hair. Head flat, coarsely punctured in more or less oblique lines, or irregularly punctured and wrinkled, clothed each side with long, remote, erect hairs; spines of the submargin close-set, erect; the tip of the tylus armed with two spines; apex of the clypeus quadrately emarginate. Antennæ rust-brown; the basal joints somewhat piceous; the third, fourth, and fifth joints particularly clothed with fine yellow pubescence. Lateral margin and eyes reddish-brown. Rostrum reaching behind the anterior coxæ; the basal joint almost hid by the bucculæ; the second longest, almost as long as the third and fourth together; the third and fourth subequal. Pronotum blackish-piceous, sometimes tinged with rufous on the lateral

margins, almost twice as broad as long; the anterior angles broadly prominent, rounded; lateral margins oblique; posterior margin sub-truncated; the surface variolosely punctate behind the middle, somewhat so on the anterior margin, and more densely on the sides; anterior part of the disk to behind the middle highly polished; the punctate surface and lateral margin invested with remote, long, rust-brown hairs, those of the sides longer. Scutellum almost as broad as long, remotely and more finely punctate, becoming finer posteriorly, with remote, long, rust-brown hairs. Sides of the prosternum anteriorly a little raised into flat lobes; medio- and post-pectus coarsely, remotely punctate. Corium broad, broader behind, finely, remotely, obsolete, on the exterior area more densely and deeply, punctate, with remote long hairs; the lateral edge densely hirsute; membrane brownish. Legs rufo-piceous; the tarsi ferruginous and very slender, the intermediate joint very small; anterior femora on the upper side and exterior to the middle line with a series of broad, shallow pits; the femora and tibiæ ciliated with long ferruginous bristles. Venter obesely convex, polished, invested with long ferruginous hairs; the sides deeply, finely, and behind more closely, punctate; sides of the segments exteriorly with a line of coarse punctures; the middle broadly impunctate; connexivum roughly punctate; the edge posteriorly faintly waved. ♂. ♀.

Length, $5\frac{1}{2}$ to $6\frac{1}{2}$ millimeters. Breadth of pronotum, 3 to $3\frac{1}{2}$ millimeters. Inhabits California (Dr. G. Horn); San Francisco (James Behrens).

AMNESTUS, Dallas.

A. pusillus. New sp.

General form of *A. spinifrons*, Say; very pale ferruginous, polished. Pronotum a little narrower anteriorly; the lateral margin anteriorly abruptly rounded; transverse line deeply impressed; the surface coarsely punctured; the humeri and posterior margin more finely punctured; the lateral submargin more broadly depressed posteriorly. Scutellum small, triangular, pointed, rufo-piceous, closely punctured. Legs flavo-testaceous or pale ferruginous; the anterior femora unarmed, ciliated; the anterior tibiæ compressed, with the spines rather long and slender. Corium paler than the pronotum, coarsely, closely punctate; the disk more remotely so; posterior margin deeply sinuated; membrane transparent, faintly whitish, much shorter than the corium. Venter with prostrate pubescence, minutely rugulose, moderately convex.

Length, 2 to $2\frac{1}{2}$ millimeters. Width of pronotum, 1 to $1\frac{1}{4}$ millimeters.

Inhabits Indian Territory, Texas, Cuba, and generally the Eastern United States south of Cape Cod. It lacks the femoral tooth, which is so conspicuous in *A. spinifrons*.

MACROPORUS, Uhler.

Broad-oval, feebly convex; the sides of the head and pronotum sparingly ciliated. Head broad, clypeate; the margins broadly reflexed, armed with short spines; tylus flattened, a little narrowed at tip, the recurved margin crossing its tip; bucculæ almost percurrent, not widened at tip; rostrum reaching between the intermediate coxæ; the basal joint a little shorter than the bucculæ, the second rather shorter than the third and fourth united; these latter subequal. Antennæ moniliform toward the apex; the basal and second joints slender, cylindrical; the second scarcely half as long as the third; the third, fourth, and fifth subequal, stouter; the fifth acute at tip. Pronotum transverse, quad-

angular; the anterior margin deeply sinuated, bluntly carinated; the anterior angles rounded, and prolonged to before the middle of the eyes; the lateral margins a little oblique, anteriorly a little curved, remotely ciliated; the edge recurved; posterior margin a little convexly curved; the lateral angles moderately obliquely rounded; the margin interior to the humeri feebly sinuated; disk posteriorly obsoletely, transversely impressed, each end of the impression excavated, and behind each eye an excavated point. Corium broad, reaching to the penultimate segment of the abdomen; the costal margin broadly curving inward at tip. Scutellum short, almost as wide as long; the tip narrow, obliquely rounded, not extending beyond the inner angle of the corium; the sides feebly sinuated.

M. repetitus.

Castaneous or rufo-piceous: broader posteriorly. Head bluntly rounded in front, with short, close spines, and remotely hairy; the margins broadly recurved, rufescent; submargin grooved; disk a little convex, irregularly, rather finely punctured; the base almost impunctured; the posterior margin broadly excavated each side; adjoining each eye and in each basal corner of the tylus with a small, round pit; ocelli red, very remote, placed near and a little behind the line of the eyes; rostrum ferruginous or pale piceous, reaching between the intermediate coxæ; the second joint much compressed, and a little shorter than the third and fourth united; antennæ moderately stout; second joint scarcely half as long as the third; third gradually enlarged toward the tip; fourth and fifth joints subequal, subfusiform. Pronotum broader than long, narrowing anteriorly, transversely impressed, smooth, finely and closely punctured, excepting the anterior part of the disk; the anterior margin deeply excavated, with the whole edge recurved; anterior angles prominently prolonged, angularly rounded; lateral margins arcuated anteriorly; the edge recurved; the submargin depressed, ciliated with long, close hairs; lateral angles rectangular, smooth, with steep sides, and feebly rounded; the intra-humeral impressions shallow. Pectus rufo-piceous, darker on the posterior pleural pieces, smooth, impunctured; the lateral margins of the prosternum slightly elevated. Legs and coxæ pale flavo- or rufo-piceous; the anterior tibiæ moderately compressed, having about six spines on the outer edge; the spines of the posterior tibiæ black-piceous; tarsi testaceous; the intermediate joint small. Scutellum a little flattened, polished and impunctured on the disk; the remaining surface closely punctured, minutely rugulose, before the tip a little sinuated; the edge very narrowly recurved; tip faintly impressed; obsoletely carinated. Corium broad, moderately convex, smooth, coarsely, closely punctured, on the disk obsoletely punctured; the costal margin broadly, convexly arcuated; the edge broad and distinctly recurved; the posterior margin faintly sinuated, furnished with a thinner border, and with the outer angle a little produced; embolium broad, reaching to the second ventral segment, minutely scabrous; the membrane brownish, moderately declivous posteriorly. Venter polished, minutely shagreened, and wrinkled each side and behind; the genital segment almost vertical, and crowned with a few erect hairs.

Length, $3\frac{1}{2}$ to 4 millimeters. Width of pronotum, 2 to $2\frac{1}{2}$ millimeters.

Inhabits San Francisco; received from Messrs. Henry Edwards and James Behrens.

A single specimen was also found by myself on the side of a hill two miles west of Baltimore, beneath a stone. Thus far, only females have been obtained.

MELANÆTHUS, Uhler.

Elongate-oval; the margins remotely ciliated all around. Head semicircular in front; the margins either feebly or obsoletely recurved; the submargin ciliated, but destitute of spines; tylus as long as the lateral lobes; occiput broad; the base of the head each side of it not scooped out; bucculæ almost percurrent, distinctly higher at the posterior end; rostrum reaching almost or quite to the intermediate coxæ; basal joint as long as the bucculæ; the second longest, a little longer than the third; third longer than the fourth, and only a little shorter than the second; the fourth subequal to the basal joint; antennæ moderately stout and long; the basal joint stouter than the second, but not so stout as the fifth, a little narrowed at tip; second slender, either longer or shorter than the third; third thicker toward the tip; fourth longer; fifth longest, and, together with the preceding joint, subfusiform. Pronotum distinctly transverse, very feebly convex; the lateral margins almost straight, a very little curved inward anteriorly; the edge recurved; anterior margin broadly sinuated; posterior margin subtruncated. Scutellum longer than broad, acutely narrowing toward the tip; the tip narrow, acutely rounded, overlapping the inner apex of the corium. Exterior field of the corium broad, depressed; the costal margin curved inward toward the tip, leaving the connexivum exposed posteriorly; the posterior margin moderately oblique, feebly arcuated; the exterior tip a little produced. Legs normal; the anterior tibiæ very moderately compressed. Venter moderately convex; the connexivum impressed longitudinally; the edge sharp and prominent. Odoriferous tube very slender, running outward about two-thirds of the distance to the exterior edge, and terminating in a flat button.

M. elongatus. New sp.

Deep black, shining, elongate-oval; the sides very parallel. Head semicircular, a little convex on the cranium, densely punctured, remotely punctured at base; the submargin broadly depressed, remotely ciliated; the margin recurved; tylus very short, a little cylindrically elevated, reaching as far as the lateral lobes, minutely rugulose, each side of it and the surface near each eye having a small sunken point; antennæ stout, dark piceous; the joints paler at each end; the second most slender, shorter than the third; the third enlarging toward the tip, a little shorter than the fourth; fifth longest; rostrum reaching not quite to the intermediate coxæ, rufo-piceous; the second joint longest; the third a little shorter; fourth shortest. Pronotum subtrapezoidal, fully twice as broad as long; the lateral margins anteriorly very slightly oblique, more suddenly rounded at the anterior angles; the edge recurved, remotely ciliated; front part of disk a little convexly elevated, polished, minutely rugulose; the remaining surface coarsely punctured; a transverse, impressed line crossing just before the base connects each side with a coarsely punctured line running forward from near the humeri, and with two impressed points near the junction of these lines; posterior margin truncated; the edge narrowly but abruptly decurved; the lateral angles rectangular. Antepectus polished, having a few small punctures; the prosternum a little carinated; meso-sternum distinctly carinated. Legs dark piceous; the posterior tibiæ long and slender. Scutellum extending not quite two-thirds the length of the venter, acutely narrowing toward the tip, with a transverse hump at base, and a narrower lunate impression behind it; the surface polished, minutely punctured; the lateral impressed lines broad, shallow, roughly punctured.

tured; the tip narrow, acutely rounded, projecting a very little way over the membrae. Corium a little wider posteriorly; costal margin a little abruptly curved inward at tip; posterior margin moderately oblique, a little convexly arcuated near the inner angle; the outer angle a little prolonged, very blunt; membrane pale-brownish, hardly half as long as the corium, with three or four very indistinct nervures. Venter slightly rouged, polished; the sides, connexivum, and genital segment minutely rouged and punctured; the connexivum broadly depressed; the edge prominent and trenchant.

Length, $3\frac{1}{2}$ millimeters. Width of pronotum, $1\frac{3}{4}$ millimeters.

Inhabits California.

A single mutilated female was received from Henry Edwards.

SEHIRUS, Amyot & Serv.

S. cinctus.

Pentatoma cincta, Palisot-Beauv. Ins. Afr. et Amer. 114, pl. 8, fig. 7.

Cydnius lygatus, Say, Heteropt. New Harmony, 10, No. 1.

Schirus albonotatus, Dallas, Brit. Mus. List Hemipt. i, 127, 2.

Schirus cinctus, Stål, Hemipt. Afr. Note, i, 29.

Inhabits New Mexico, Texas, in Tamaulapas, Mexico, and the United States pretty generally. It has not yet, however, been brought from the territories north of New Mexico, although it is found in Canada, not far from Quebec. The males usually have a smaller emargination of the front of the clypeus than the females; and they are also more frequently destitute of the white spot of the corium.

SUBFAMILY ASOPINA.

STIRETRUS, Lap.

S. anchorago.

Cimex anchorago, Fab., Syst. Rhyng. 137, 44; Ent. Syst. 86.

Tetyra diana, Fab., Syst. Rhyng. 137, 45.

Pentatoma pulchella, Westw., Hope Catal. i, 42.

Asopus variegatus, H.-Schf., Wanz. Ins. iv, 90, fig. 427.

Stiretrus fimbriatus, Dallas, Brit. Mus. List Hemipt. i, 81, 10.

Tetyra violacea, Say, Amer. Ent. pl. 43, fig. 2.

Inhabits Texas, New Mexico, and the Southern States. The variety *S. fimbriatus*, Dallas, extends as far north as Massachusetts, while it is not uncommon in all the States north of Virginia. Almost all the varieties, from an almost uniform yellow *fimbriatus* through the red and blue *diana* to the uniform violet *violacea*, have passed through my hands. The latter variety has been taken once near Philadelphia; in Georgia; in Florida; and once, also, in Texas by Mr. Boll.

PERILLUS, Stål.

1. *P. claudus*.

Pentatoma clauda, Say, Journ. Acad. Phila. iv, 312, No. 2.

Inhabits Colorado, Dakota, Northern California, New Mexico, Utah, and Arizona (C. V. Riley).

2. *P. exaptus*.

Pentatoma exapta, Say, Journ. Acad. Phila. iv, 313, No. 3.

Zicrona marginella, Dallas, Brit. Mus. List, i, 109, 5.

Pentatoma variegata, Kirby, Fauna Bor.-Am. 276, No 334.

Inhabits Colorado, Dakota, Canada, New England, &c.]

3. *P. circumcinctus*.

Perillus circumcinctus, Stål, Hemipt. Mex. Stettiner Ent. Zeit. 23, 89.

Inhabits Nebraska, Missouri, Canada, Dakota, New England, Panama, and the island of Trinidad.

4. *P. confluens*.

Asopus confluens, H.-Schf., Wanz. Ins. v, 77, fig. 522.

Perillus confluens, Stål, Enumeratio Hemipt. i, 32.

Inhabits Texas, New Mexico, and Mexico to Guatemala.

Thus far, only one type of variety of this species has been found in the Southwestern United States; but in Mexico it offers many varieties, some of which possess great brilliancy and richness of colors.

5. *P. splendidus*.

Zicrona splendida, Uhler, Proc. Ent. Soc. Phila. 1833, i, 22.

Inhabits California (James Behrens); San Diego (H. Edwards); Fort Crook (Dr. George Horn); Texas (G. W. Belfrage).

MINEUS, Stål.

M. strigipes.

Podisus strigipes, H.-Schf., Wanz. Ins. ix, 338.

Mineus strigipes, Stål, Enumeratio Hemipt. i, 32.

Inhabits Texas, New Mexico, New York, South Carolina, Georgia, and Maryland.

RHACOGNATHUS, Fieber.

R. americanus.

Rhacognathus americanus, Stål, Enumeratio Hemipt. i, 33, No. 2.

Inhabits Illinois, Nebraska, and Canada.

ZICRONA, Amyot & Serv.

Z. cuprea.

Zicrona cuprea, Dallas, Brit. Mus. List Hemipt. i, 108, No. 2.

Inhabits Arizona; Snake River region, Idaho; Fort Defiance, New Mexico; and British America.

PODISUS, Stål.

1. *P. cynicus*.

Pentatoma cynica, Say, Heteropt. New Harmony, 3, No. 1.

Arma grandis, Dallas, Brit. Mus. List Hemipt. i, 96, 3.

Inhabits Dakota, Nebraska, Arizona, Missouri, Illinois, Massachusetts, New York, &c.

2. *P. spinosus*.

Arma spinosa, Dallas, Brit. Mus. List Hemipt. i, 98, No. 7.

Inhabits Nebraska, Kansas, California, Texas, and the Atlantic region generally.

3. *P. pallens*.

Arma pallens, Stål, Eugenes Resa, Hemipt. 222, No. 6.

Inhabits California; San Francisco (James Behrens).

The small differences in the lateral angles of the pronotum and in puncturing do not seem to me sufficient to separate this from *P. modestus*.

4. *P. modestus*.

Arma modesta, Dallas, Brit. Mus. List Hemipt. i, 101, No. 13.

Podisus modestus, Stål, Enumeratio Hemipt. i, 51, No. 13.

Inhabits Dakota, Nebraska, Illinois, Canada, and the Eastern United States as far south as Georgia.

TYLOSPILUS, Stål.

T. acutissimus.

Tylospilus acutissimus, Stål, Enumeratio Hemipt. i, 53, No. 27.

Inhabits Texas, Colorado, and Mexico.

SUBFAMILY HALYDINA.

BROCHYMENA, Amyot & Serv.

1. *B. myops*.

Brochymena myops, Stål, Enumeratio Hemipt. ii, 16, No. 1.

Halys quadripustulata, H.-Schf., Wanz. Ins. vii, 57, fig. 729.

Inhabits Texas, New Mexico, Louisiana, and Mexico.

2. *B. annulata*.

Cimex annulatus, Fab., Syst. Ent. 704, No. 38.

Halys annulata, H.-Schf., Wanz. Ins. vii, 57, fig. 728.

Halys serrata, Wolff, Icones Cim. 184, fig. 178.

Inhabits Colorado, Texas, and a large part of the United States east of the Mississippi River.

3. *B. obscura*.

Halys obscura, H.-Schf., Wanz. Ins. v, 68, fig. 513.

Brochymena obscura, Stål, Enumeratio Hemipt. ii, 16, No. 4.

Inhabits Arizona, California, Mexico, &c.

4. *B. arborea*.

Pentatoma arborea, Say, Journ. Acad. Phila. iv, 311, No. 1; Complete Writings, ii, 239.

Halys erosa, H. Schf., Wanz. Ins. v, 70, fig. 515.

Brochymena arborea, Dallas, Brit. Mus. List Hemipt. i, 188, No. 1.

Inhabits Texas, New Mexico, Indian Territory, Mexico, Kansas, and most of the eastern regions of the United States from Maine to Florida.

PRIONOSOMA, Uhler.

P. podopioides.

Prionosoma podopioides, Uhler, Proc. Ent. Soc. Phila. 1863, ii, 364.

Prionosoma podopioides, Stål, Enumeratio Hemipt. ii, 32.

Inhabits California, Arizona, Colorado, and Nevada.

Specimens have been sent to me from Denver City by Mr. B. H. Smith.

SUBFAMILY PENTATOMINA.

MECIDEA, Dallas.

M. longula.

Mecidea longula, Stål, Öfv. Vet. Acad. Forhandl. 1854, 233, No. 2; *ib.* 1856, 57, No. 2.

Inhabits Texas; New Mexico (Dr. J. L. LeConte).

ÆLIA, Fab.

Æ. americana.

Ælia americana, Dallas, Brit. Mus. List, i, 223, No. 1.

Inhabits Nebraska, Dakota, and British America.

This interesting insect is almost unknown to our American entomologists; only two (damaged) specimens have thus far come to my notice.

We beg particularly to call the attention of western collectors to this interesting genus, which should yield other and perhaps new species in return for moderately close collecting in shrubby spots where the small growths are rank and dense.

In Europe, the genus is represented by more than a half-dozen species.

NEOTTIGLOSSA, Kirby.

N. undata.

Pentatoma undata, Say, Heteropt. New Harmony, 8, No. 17; Complete Writings, i, 319, 17.

Neottiglossa trilineata, Kirby, Fauna Bor.-Amer. iv, 276, pl. 6, fig. 6.

Inhabits Colorado, Nebraska, Canada, and the Northern United States.

MELANOSTOMA, Stål.

M. sulcifrons.

Melanostoma sulcifrons, Stål, Enumeratio Hemipt. ii, 18.

Inhabits Texas and New Mexico.

A single specimen of this interesting little insect was captured by me near Egg Harbor City, N. J.

COSMOPEPLA, Stål.

1. *C. carnifex.*

Cimex carnifex, Fab., Ent. Syst. Suppl. 535, No. 162.

Eysarcoris carnifex, Hahn, Wanz. Ins. ii, 117, fig. 198; Dallas, Brit. Mus. List Hemipt. i, 225, No. 3.

Pentatoma carnifex, Kirby, Fauna Bor.-Amer. iv, 275, No. 1.

Cosmopepla carnifex, Stål, Enumeratio Hemipt. ii, 19, No. 1; Hemipt. Fab. i, 23.

Inhabits Texas; Indian Territory; Nebraska; eastern part of Washington Territory; Port Neuf, Canada (Abbé Provancher); Nova Scotia; Illinois; and Maine to Georgia.

2. *C. conspicillaris.*

Eysarcoris conspicillaris, Dallas, Brit. Mus. List Hemipt. i, 225, No. 2.

Cosmopepla conspicillaris, Stål, Enumeratio Hemipt. ii, 19, No. 4.

Inhabits California, Vancouver's Island, and Mexico. On the hills and plains of Colorado, September 19 and October 4; collected by Lieut. W. L. Carpenter.

3. *C. decorata.*

Eysarcoris decorata, Hahn, Wanz. Ins. ii, 117, fig. 198.

Pentatoma decorata, H.-Schf., Wanz. Ins. vii, 96.

Cosmopepla decorata, Stål, Enumeratio Hemipt. i, 19, No. 2.

Inhabits Texas, Arizona, Mexico, and Guatemala.

It will be of peculiar interest to have full series of the three forms enumerated above, as it is highly probable that they constitute in reality but a single species. The first seems to be the continental form, but

which does not cross the meridian of the Sierra Nevada Mountains; the second does not cross beyond the eastern base of the Rocky Mountains; while the third is the subtropical southern form.

MORMIDEA, Amyot & Serv.

1. *M. lugens*.

Cimex lugens, Fab., Syst. Ent. 716, No. 93.

Cimex albipes, Fab., Ent. Syst. Suppl. 535, 162.

Cydnus lugens, Fab., Syst. Rhyng. 187, No. 12; Wolff, Icones Cim. 183, fig. 180.

Cimex gamma, Fab., Syst. Rhyng. Index, 7.

Pentatoma punctipes, Palisot-Beauv. Ins. Afr. et Amer. 113, pl. 8, fig. 6.

Pentatoma punctipes, Say, Journ. Acad. Phila. iv, 313, No. 4.

Pentatoma lugens, H.-Schf., Wanz. Ins. vii, 96.

Mormidea lugens, Stål, Stettiner Ent. Zeit. xxiii, 103, No. 73.

Inhabits Texas, Indian Territory, Cheyenne, Dakota, Nebraska, Mexico, and almost the whole of North America east of the Missouri and Mississippi Rivers.

Specimens were captured on Mitchell's Peak, and on some of the other high mountains of North Carolina, in August, at an elevation of more than 6,000 feet above sea-level, by my lamented late friend Dr. James B. Bean.

2. *M. sordidula*.

Mormidea sordidula, Stål, Enumeratio Hemipt. ii, 21, No. 18.

Inhabits Texas and New Mexico.

CEBALUS, Stål.

C. *pugnax*.

Cimex pugnax, Fab., Syst. Ent. 704, No. 41.

Cimex typhæus, Fab., Syst. Rhyng. 162, No. 34.

Pentatoma orthacantha, Palisot-Beauv. Ins. Afr. et Amer. 130, pl. 9, fig. 9.

Cimex typhæus, Wolff, Icones Cim. 180, fig. 174.

Pentatoma augur, Say, Heteropt. New Harmony, 3, No. 2.

Cebalus typhæus, Stål, Hemipt. Fab. i, 27.

Cebalus pugnax, Stål, Enumeratio Hemipt. ii, 22, No. 1.

Inhabits Texas, Arizona, Matamoras, Mexico, the Eastern United States generally, Cuba, and New Granada. It occurs at considerable altitudes on the Black Mountains of North Carolina, and is not unfrequent upon grassy and shrubby spots in Georgia and Florida. Miss Modeste Hunter collected it near Orange Springs, Florida, in the month of July.

In Maryland, it may be found on low spots in the meadows where the plants and grass grow rich and dense, in June, August, September, and October. It appears to lay eggs in late spring and toward the latter part of summer.

The Cuban form is usually larger, and has the lateral angles longer and more slender than in those from the United States.

EUSCHISTUS, Dallas.

1. *E. variolarius*.

Pentatoma variolaria, Palisot-Beauv. Ins. Afr. et Amer. 149, pl. 10, fig. 6.

Pentatoma punctipes, Say, Journ. Acad. Phila. iv, 314, No. 5; Complete Writings, ii, 241, No. 5.

Cimex ictericus, H.-Schf., Wanz. Ins. vi, 71, fig. 639.

Cimex sordidus, H.-Schf., Wanz. Ins. vi, 70, fig. 637.

Euschistus punctipes, Dallas, Brit. Mus. List Hemipt. i, 207, No. 16.

Inhabits Colorado, Texas, and generally throughout the eastern side of the United States.

2. *E. ictericus*.

Cimex ictericus, Linn., Cent. Ins. 16, No. 41.

Pentatoma rubro-fusca, Palisot, Beauv. Ins. Afr. et Amer. 185, pl. 11, fig. 3.

Euschistus cognatus, Dallas, Brit. Mus. List Hemipt. i, 204, No. 10.

Euschistus ictericus, Stål, Enumeratio Hemipt. ii, 26, No. 23.

Inhabits Texas, Nebraska, Illinois, and the Atlantic States.

3. *E. fissilis*.

Euschistus fissilis, Uhler, Hayden's Survey of Montana, 396, No. 1.

Dicercus euschistoides, Voll., Versl. Akad. Amst. ser. 2, ii, 180, No. 24.

Euschistus fissilis, Stål, Enumeratio Hemipt. ii, 26, No. 18.

Inhabits Colorado, Nebraska, Illinois, and parts of the Atlantic region.

4. *E. tristigma*.

Pentatoma tristigma, Say, Heteropt. New Harmony, 4, No. 4; Complete Writings, i, 314.

Pentatoma tristigma, H.-Schf., Wanz. Ins. vii, 101, fig. 767.

Cimex pyrrhocerus, H.-Schf., l. c. vi, 71, fig. 638.

Euschistus luridus, Dallas, Brit. Mus. List Hemipt. i, 207, pl. 7, fig. 6.

Euschistus tristigma, Dallas, l. c. i, 207, No. 18.

Inhabits Texas, Indian Territory, Kansas, Missouri, and from Florida to New York. Those with blunt lateral angles have been obtained in Washington Territory, Kansas, Canada, New England, Pennsylvania, Maryland, Iowa, and New York. It sometimes occurs in large numbers, in late summer, on bushes in damp situations. No species thus far discovered in this country exhibits such a wide range of differences in the form of the pronotum. The form most common in Maryland has acute and acuminate lateral angles, but longer than in others from Pennsylvania, Virginia, Louisiana, and some other parts of the South. The large specimens, with bluntly-rounded angles, have not yet been collected by me in company with the other form. A whitish bloom often covers the mature specimens in this region.

5. *E. crenator*.

Cimex crenator, Fab., Ent. Syst. iv, 101, No. 87.

Pentatoma obscura, Palisot-Beauv. Ins. Afr. et Amer. 149, pl. 10, figs. 7 and 9.

Pentatoma pustulata, Palisot-Beauv. l. c. pl. 11, fig. 2.

Euschistus obscurus, Dallas, Brit. Mus. List, i, 208, No. 19.

Mormidea pustulata, Guer., in La Sagra's Hist. Nat. Cuba, Ins. 368.

Mormidea obscura, Guer., l. c. 366.

Euschistus crenator, Stål, Hemipt. Fab. i, 26.

Inhabits Texas, Mexico, Cuba, Florida, and Arizona.

6. *E. servus*.

Pentatoma serva, Say, Heteropt. New Harmony, 4, No. 5.

Euschistus servus, Stål, Enumeratio Hemipt. ii, 26, No. 19.

Inhabits Texas, New Mexico, California, Dakota, Illinois, Maryland, and the Southern States generally. In Texas and Florida, it attains to a very large size, with a greater aggregation of the black punctures on the head.

PROXYS, Spin.

P. punctulatus.

Halys? punctulata, Palisot-Beauv. Ins. Afr. et Amer. Hem. 188, pl. 11, fig. 9.

Cimex victor, Wolff, Icones Cim. 181, fig. 175.

Pentatoma tenebrosa, Say, Ins. of Louisiana, 8, and Heteropt. New Harmony, 10, No. 25; Complete Writings, i, 304, No. 2.

Prooxys victor, Amyot et Serv., Hemipt. 140.

Prooxys delivator, Amyot et Serv., *ib.* 140, pl. 3, fig. 7.

Prooxys punctulata, Guer., La Sagra's Hist. de Cuba, Ins. 370.

Prooxys brevispinus, Guer., *ib.* 371.

Proxys geniculata, Stål, Stettiner Ent. Zeit. xxiii, 102, No. 67.

Inhabits Cuba, San Domingo, Mexico, Texas, Indian Territory, Louisiana, Georgia, and Florida. One specimen has been captured near Philadelphia. Further collecting in Arizona and New Mexico will most likely yield specimens of this conspicuous species.

HYMENARCYIS, Amyot & Serv.

1. *H. nervosa*.

Pentatoma nervosa, Say, Heteropt. New Harmony, 9, No. 20.

Pentatoma Pennsylvaniae, Westw., in Hope Catal. i, 35.

Hymenarcys perpunctata, Amyot et Serv., Hemipt. 124, No. 1.

Inhabits Mexico, Texas, Indian Territory, Dakota, Missouri, Illinois, and from Massachusetts to Florida. In Maryland, it occurs with moderate frequency upon rank low herbage in meadows and about the skirts of woods. Like *Euschistus variolarius* and other species, it becomes, when senile, suffused with red, is dusted with a whitish powder, and seems then to have a more decidedly penetrative odor in the fluid which it sprays from the aperture of its glands.

2. *H. aequalis*.

Pentatoma aequalis, Say, Heteropt. New Harmony, 7, No. 15.

Cimex dentatus, H.-Schf., Wanz. Ins. v, 64, fig. 507.

Pentatoma bozura, Dallas, Brit. Mus. List Hemipt. i, 244, No. 29.

Inhabits Texas, Indian Territory, Mexico, and the Southeastern United States. In Maryland, it hibernates beneath stones in sheltered valleys, but is much less common than the preceding species.

CÆNUS, Dallas.

C. delius.

Pentatoma delia, Say, Heteropt. New Harmony, 8, No. 18.

Cænus tarsalis, Dallas, Brit. Mus. List Hemipt. i, 230, pl. 8, fig. 6.

Cænus punctatissimus, Voll., Versl. Akad. Amst. ser. 2, ii, 183.

Inhabits Texas, Indian Territory, Illinois, Massachusetts, New York, &c.

MENECLIS, Stål.

M. insertus.

Pentatoma inserta, Say, Heteropt. New Harmony, 6, No. 11.

Meneclis insertus, Stål, Öfv. Vetensk. Akad. Förh. 1867, 527.

Inhabits Kansas, Nebraska, California, Illinois, Missouri, Massachusetts, and Pennsylvania.

It varies somewhat in the length of the anterior angles of the pronotum, and in the depth of the sinus, which receives the head.

RHYTIDOLOMIA, Stål.

R. Belfragii.

Rhytidolomia Belfragi, Stål, Enumeratio Hemipt. ii, 33, No. 3.

Inhabits Illinois, Canada, and Nebraska.

CHLOROCHROA, Stål.

1. *C. Sayi*.

Chlorochroa Sayi, Stål, Enumeratio Hemipt. ii, 33, No. 6 (1872).

Pentatoma granulosa, Uhler, Hayden's Survey of Montana, 398 (1872).

Inhabits California, Arizona, Nevada, &c. The present specimens

were collected by Lieutenant Carpenter on the foot-hills of Colorado in September.

This is quite variable in size, depth of colors, and in the number and size of the bald white spots which occur on the scutellum and hemelytra. I am unable to decide which of the two names should have preference; both were published in the same year; but, perhaps, the one was issued a few days or weeks earlier than the other.

2. *C. congrua*. New sp.

Broadly oval, bright grass-green; the upper surface and margins of the pleuræ finely and deeply punctate between slender transverse rugæ. Head having the surface impressed each side of the tylus; the lateral lobes a little longer than the tylus; exterior margins acute, elevated, more deeply sinuate than in *C. Sayi*. Antennæ green, but with the apical, the fourth, and the third, almost to its base blackish, and these joints particularly granulose and setose; the second joint twice as long as the third, the third much the shortest. Rostrum reaching to the posterior coxæ, green; the middle line and apical joint black; basal joint a little shorter than the head; the second longer, reaching to the middle coxæ; the third and fourth subequal, but much shorter. Pronotum very short and broad; the lateral margins very distinctly and evenly reflexed, and continued around the broadly-rounded humeral angles, the margin inferiorly appearing broadly tabulate and smooth. Pleuræ coarsely punctate, but more finely so on the elevated areas; the anterior submargin transversely linearly carinated from the anterior angle to the sternal boundary. Prosternum broadly, deeply scooped out, triangular behind; mesosternum slenderly carinate; the metasternum produced backward triangularly, and a little scooped out before the tip. Legs green, the tarsi slightly rufous. Scutellum slenderly margined and more broadly tipped with white. Corium more minutely rugulose, finely punctate, the punctures grading finer posteriorly; embolium smooth, having a few remote and obsolete punctures, and, together with the adjoining margin, white. Membrane soiled white, having eleven longitudinal nervures. Wings white, with the coarse costal nervure piceous. Tergum black as far as to the penultimate segment, very minutely and closely punctured and rugulose. Venter smooth, remotely, obsoletely punctured, but almost destitute of punctures along the middle.

In one specimen, the lateral margin of the pronotum is white, more broadly so beneath, and the edge of the venter is deep orange. The inferior genital segment is hairy and scooped out in the form of a crescent.

Length, 9 to 12 millimeters. Width of pronotum, $5\frac{1}{2}$ to $6\frac{1}{2}$ millimeters.

Inhabits Colorado. Collected by Lieutenant Carpenter on the foot-hills of Colorado in September.

3. *C. ligata*.

Pentatoma ligata, Say, Heteropt. New Harmony, 5, No. 6.

Cimex rufocinctus, H.-Schf., Wanz. Ins. iv, 94, fig. 436.

Pentatoma marginalis, Walk., Brit. Mus. Catal. of Hemipt. ii, 238.

Inhabits California, Mexico, Texas, New Mexico, Arizona, &c.

Varies greatly in size; the red color of the margin of the pronotum and abdomen and the tip of the venter is sometimes substituted by pale green or whitish.

I do not think this subgenus can stand. The species composing it are congeneric with *Pentatoma juniperi*, Linn., and must be associated with it. If that species is really the type of *Pentatoma*, Oliv., then all these species must be placed therein.

4. *C. Uhleri*.

Chlorochroa Uhleri, Stål, Enumeratio Hemipt. ii, 33, No. 5.

Inhabits Colorado and Mexico.

It varies very much in size, and is of a remarkably vivid-green color.

CARPOCORIS, Kol.

C. lynx.

Cimex lynx, Fab., Ent. Syst. 110, No. 118.

Carpocoris lynx, Muls., Pun. France, ii, 254, No. 5.

Inhabits California, Montana, and Arizona.

Very variable in size, pattern of markings, and somewhat in shape, particularly of the pronotum.

TRICHOPEPLA, Stål.

T. semivittata.

Pentatoma semivittata, Say, Heteropt. New Harmony, 9, No. 21.

Pentatoma semivittatum, H.-Schf., Wanz. Ins. vii, 93, fig. 766.

Pentatoma pilipes, Dallas, Brit. Mus. List Hemipt. i, 247, No. 37.

Trichopepla semivittata, Stål, Enumeratio Hemipt. ii, 34.

Inhabits Texas, Nebraska, and the whole Atlantic region.

PERIBALUS, Muls.

P. modestus.

Peribalus modestus, Uhler, in Hayden's Survey of Montana, 396.

Inhabits Arizona, Texas, Kansas, Colorado, and the Atlantic region of the United States.

HOLCOSTETHUS, Fieb.

H. abbreviatus.

Holcostethus abbreviatus, Uhler, l. c. 397.

Inhabits Kansas, Texas, California, Colorado, and British America.

THYANTA, Stål.

1. *T. perditor*.

Cimex perditor, Fab., Ent. Syst. iv, 102, No. 90.

Pentatoma faseifera, Palisot-Beauv. Ins. Afr. et Amer. Hem. 150, pl. 10, fig. 8.

Pentatoma collaris, Westw., Hope Catal. i, 40.

Cimex dimidiatus, H.-Schf., Wanz. Ins. vi, 65, fig. 629.

Euschistus perditor, Dallas, Brit. Mus. List Hemipt. i, 206.

Pentatoma (Mormidea) perditor, Guer., in La Sagra's Hist. de Cuba, Ins. 367.

Euschistus fasciatus, Walk., Brit. Mus. Catal. Heteropt. ii, 245, No. 12.

Thyanta perditor, Stål, Hemipt. Fab. i, 29.

Euschistus adjunctor, Walk., l. c. ii, 249, No. 39.

Inhabits Texas, Mexico, West Indies, Arizona, Colorado, and Nebraska.

Its southern limit is Venezuela; and, as far as at present known, its most northern is Nebraska. As might be expected in a species extending throughout such widely different climates, it offers much variation in form and size. The southern forms are largest, have the most prolonged lateral angles to the pronotum, and are more distinctly and broadly marked with crimson on the pronotum.

2. *T. custator*.

Cimex custator, Fab., Syst. Rhyng. 164, No. 43.

Pentatoma calceata, Say, Heteropt. New Harmony, 8, No. 19; Complete Writings, i, 320, No. 19.

Pentatoma custator, H.-Schf., Wanz. Ins. vii, 96, fig. 771; Dallas, Brit. Mus. List Hemipt. i, 251.

Inhabits Lower and Upper California, Texas, Arizona, Colorado, Dakota, and the Atlantic region generally from Quebec to Florida.

The southern specimens are usually larger and more clearly marked with the yellow and red. Those from Lower California seem to lack the pronotal red band.

3. *T. rugulosa*.

Pentatoma rugulosa, Say, Heteropt. New Harmony, 7, No. 16.

Inhabits Texas (Mr. Belfrage); Cape Saint Lucas, Cal. (John Xanthus); Colorado (B. H. Smith); Cuba (Professor Poey). The specimens from Lower California are a little less robust, and have the lateral angles of the pronotum a little more acute than in those from Colorado. One specimen from Dakota, too much damaged to show its particular features.

LOXA, Amyot & Serv.

L. flavicollis.

Cimex flavicollis, Drury, Illustr. ii, 67, pl. 36, fig. 4.

Cimex albicollis, Fab., Spec. Ins. ii, 347, No. 51.

Pentatoma viridis, Palisot-Beauv. Ins. Afr. et Amer. Hem. 111, pl. 8, fig. 1.

Loxa flavicollis, Amyot et Serv., Hemipt. 137, No. 1.

Loxa virescens, Amyot et Serv., l. c. 137, No. 2.

Pentatoma albicollis, H.-Scheff., Wanz. Ins. vii, 94; Stoll, Punaises, figs. 196, 198, 200.

Inhabits South America, the West Indies, and Mexico; but specimens have been collected in Texas and New Mexico, which I have had the privilege of examining. They differed in no considerable degree from others brought from Rio and Surinam. They exhibit a certain amount of variation in the length and acuteness of the pronotal serrations and lateral angles, which, in the specimens from Rio, are often much prolonged and very acute.

MURGANTIA, Stål.

M. histrionica.

Strachia histrionica, Hahn, Wanz. Ins. ii, 116, fig. 196.

Murgantia histrionica, Stål, Enumeratio Hemipt. ii, 37, No. 4.

Inhabits Guatemala, Mexico, Texas, Arizona, Indian Territory, California, Nevada, Colorado, and from Delaware to Florida and Louisiana.

Various patterns of marking, and colors ranging from yellow to steel-blue, are conspicuously exhibited in this pretty but unstable and pernicious insect.

In the Atlantic region, this species seems to be steadily but slowly advancing northward. Its introduction into Maryland has been effected since the late war, and now it is known as far north as the vicinity of the Pennsylvania boundary-line in Delaware.

In the Mississippi Valley, it appears to be equally common, particularly in the States of Illinois and Missouri.

ARVELIUS, Spin.

A. albo-punctatus.

Cimex albopunctatus, De Geer., Mem. iii, 331, pl. 34, fig. 6.

Cimex gladiator, Fab., Syst. Ent. 705, No. 43.

Pentatoma gladiator, Palisot-Beauv. Ins. Hem. 127, pl. 9, fig. 1.

Cimex leucostictus, Gmelin, Syst. Nat. 2148, No. 282.

Acanthosoma gladiator, Burm., Handb. ii, 359.

Acanthosoma luteicornis, Westw., in Hope Catal. i, 30.

Arvelius gladiator, Spinola, Essai Hemipt. 346; H.-Scheff., Wanz. Ins. v, 104, fig. 557.

Arvelius albo-punctatus, Amyot et Serv., Hist. Hem. 150.

Pentatoma (Arvelius) albopunctata, Guer., La Sagra's Hist. de Cuba, Ins. 374; Stoll, Punaises, fig. 12.

Inhabits South America, West Indies, Mexico, Texas, Cape Saint Lucas, California, Arizona, and Florida.

A specimen measuring in length only $11\frac{1}{2}$ millimeters was sent from Cuba by Professor Poey. It is destitute of the black rings of the antennæ. As in some other species of which we have examined long series, the punctures and rugæ are coarser or finer according to the size of the specimen. The white band on the front of the pronotum is absent from some specimens.

BANASA, Stål.

1. *B. euchlora*.

Banasa euchlora, Stål, Enumeratio Hemipt. ii, 44, No. 8.

Inhabits Texas, Indian Territory, Florida, Maryland, &c. Mr. G. W. Belfrage met with this species beneath the bark of cedar-trees near Waco, Tex.

2. *B. calva*.

Pentatoma calva, Say, Heteropt. 7, No. 13.

Rhaphigaster calvus, Dallas, Brit. Mus. List Hemipt. i, 282, No. 25.

Inhabits Canada, New England, New York, Maryland, Texas, Washington Territory, and Fort Grant, Ariz. (Dr. G. H. Horn):

This is the most beautiful of our species of *Rhaphigastrines*; the highly-polished surface of clear green with the purple band across the pronotum give it a very lively and gay appearance.

3. *B. dimidiata*.

Pentatoma dimidiata, Say, Heteropt. New Harmony, 7, No. 14; Complete Writings, i, 318. Erroneously printed *P. dimiata* in Say's original description.

Inhabits Texas, Indian Territory, North Carolina, Massachusetts, &c. It differs so little from the preceding species that, besides the greater convexity of the pronotum, and the more decided spotting of the venter in the latter, there is but little to separate it. The length of the joints of the antennæ is not an invariable character.

FAMILY COREIDÆ.

SUBFAMILY SPARTOCERINA.

SPARTOCERA, Lap.

S. cinnamomea.

Corecoris cinnamomeus, Hahn, Wanz. Ins. ii, 15, fig. 124; H.-Schf., *ib.* vi, 90.

Spartocerus subfulvus, Westw., Hope Catal. ii, 8.

Spartocera cinnamomea, Dallas, Brit. Mus. List, ii, 375, No. 9.

Coreus diffusus, Say, Heteropt. New Harmony, 11, No. 2.

Inhabits Texas, New Mexico, Florida, Mexico, Brazil, and Georgia.

SEPHINA, Amyot et Serv.

S. limbata.

Sephina limbata, Stål, Stettiner Ent. Zeit. xxiii, 273, No. 117.

Inhabits Mexico, Lower California, and Central America.

SUBFAMILY CHARIESTERINA.

CHARIESTERUS, Lap.

C. antennator.

Coreus antennator, Fab., Syst. Rhyng. 198, No. 33.

Gonocerus dubius, Say, Heteropt. New Harmony, 10.

Chariesterus moestus, H.-Schf., Wanz. Ins. vii, 3, fig. 681.

Chariesterus antennator, Dallas, Brit. Mus. List, ii, 510, No. 1.

Inhabits Texas, Colorado, Indian Territory, Florida, Cuba, &c., and in the Atlantic region generally.

SUBFAMILY COREINA.

MARGUS, Dallas.

*M. inconspicuus.**Syromastes inconspicuus*, H.-Schf., Wanz. Ins. vi, 14, fig. 570.*Margus inconspicuus*, Stål, Stettiner Ent. Zeit. xxiii, 303.

Inhabits Colorado, Texas, California (J. Behrens), and Mexico.

CHELINIDEA, Uhler.

*C. vittigera.**Chelinidea vittiger*, Uhler, Proc. Ent. Soc. Phila. ii, 366.*Chelinidea vittigera*, Stål, Enumeratio Hemipt. i, 180.

Inhabits Idaho, Utah, Colorado, Arizona, New Mexico, California, Texas, and Western Virginia.

In Texas, according to Mr. Belfrage, it lives on a species of *Opuntia*.

CATORHINTHA, Stål.

1. *C. guttula.**Lygaeus guttula*, Fab., Ent. Syst. iv, 162, No. 92.*Gonocerus dorsiger*, Westw., Hope Catal. Hemipt. ii, 25.*Anasa dorsigera*, Dallas, Brit. Mus. List, ii, 504, No. 1.*Catorhintha guttula*, Stål, Hem. Fab. i, 53, No. 1.

Inhabits Texas, New Mexico, Lower California, Cuba, and Florida.

2. *C. Texana.**Catorhintha Texana*, Stål, Enumeratio Hemipt. i, 188, No. 5.

Inhabits Texas, Indian Territory, and New Mexico.

3. *C. selector.**Catorhintha selector*, Stål, Öfv. Vet. Akad. Förh. 1859, 471; Enumeratio Hemipt. i, 188, No. 4.

Inhabits Arizona, Texas, and New Mexico.

4. *C. mendica.**Catorhintha mendica*, Stål, Enumeratio Hemipt. i, 187, No. 2.

Inhabits Colorado, Indian Territory, and Dakota.

FICANA, Stål.

*F. apicalis.**Gonocerus apicalis*, Dallas, Brit. Mus. List Hemipt. ii, 499, No. 19.*Ficana apicalis*, Stål, Enumeratio Hemipt. i, 185.

Inhabits Arizona, California, and Mexico.

ANASA, Amyot & Serv.

1. *A. tristis.**Cimex tristis*, De Geer, Mém. iii, 340, pl. 34, fig. 20.*Cimex moestus*, Gmelin, Syst. Nat. i, 2168, No. 374.*Coreus rugator*, Fab., Syst. Rhyng. 192, No. 4.*Oriterus destructor*, Hahn, Wanz. Ins. i, 8, fig. 2.*Coreus ordinatus*, Say, Journ. Acad. Phila. iv, 318, No. 2.*Gonocerus rugator*, Burm., Handb. ii, 311, No. 4.*Gonocerus tristis*, Dallas, Brit. Mus. List Hemipt. ii, 499, No. 17.*Anasa tristis*, Stål, Hem. Fab. i, 56, No. 3.

Inhabits California, Mexico, Brazil, Texas, Arizona, Colorado, and the United States generally. Port Neuf, near Quebec (L. Provancher).

It varies very much in size, proportions, and colors, and also in the size of the punctures of the surface in conformity with its own dimen-

sions; those which are largest being most coarsely punctured, while those which are smallest are the most finely punctured.

In the larval stage, they are often guilty of cannibalism; the stronger ones sucking the juices of the weaker, and leaving only their dried empty skins to attest their places upon the squash-vines.

2. *A. Andresii*.

Coreus (Gonocerus) Andresii, Guer., in La Sagra's Cuba, Ins. 383.

Anasa lugens, Stål, Stettiner Ent. Zeit. xxiii, 301.

Inhabits Texas, New Mexico, Mexico, Cuba, Louisiana, and Southern Florida.

3. *A. armigera*.

Coreus armigerus, Say, Journ. Acad. Phila. iv, 319, No. 3.

Anasa terminalis, Dallas, Brit. Mus. List Hemipt. ii, 506, No. 4.

Anasa armigera, Stål, Hem. Fab. i, 57, No. 10; Enumeratio Hemipt. i, 192, No. 12.

Inhabits Texas, Indian Territory, Florida, North Carolina, Georgia, and Virginia. It is very rare in Maryland; only a single specimen having thus far been known to be captured in this State.

4. *A. scorbatica*.

Cimex scorbaticus, Fab., Syst. Ent. 706, No. 47.

Coreus scorbaticus, Fab., Ent. Syst. iv, 129, No. 9.

Acanthocerus nebulosus, Palisot-Beauv. Ins. Afr. et Amer. 205, pl. 12, fig. 6.

Anasa moesta, Dallas, Brit. Mus. List Hemipt. ii, 505, No. 2.

Anasa moesta, Guer., in La Sagra's Hist. de Cuba, Ins. 380.

Anasa spiniceps, Stål, Stettiner Ent. Zeit. xxiii, 300, No. 16?

Anasa scorbatica, Stål, Hem. Fab. i, 56, No. 2.

Inhabits Texas, Indian Territory, Cuba, Mexico, Central America, and Southern Florida.

5. *A. obliqua*.

Gonocerus obliquus, Uhler, Proc. Ent. Soc. Phila. i, 23.

Inhabits California.

Thus far only a single specimen has been obtained, which is in the cabinet of the Entomological Society of Philadelphia.

PARYPHES, Burm.

P. rufo-scutellatus.

Nematopus rufo-scutellatus, G. R. Gray, in Griffith's Anim. Kingd. xv, 241, pl. 97, fig. 1.

Inhabits California, Cape Saint Lucas (J. Xanthus), and Mexico.

SUBFAMILY ALYDINA.

ALYDUS, Fab.

1. *A. eurinus*.

Lygæus eurinus, Say, Journ. Acad. Phila. iv, 324, No. 5; Complete Writings, ii, 247.

Alydus ater, Dallas, Brit. Mus. List Hemipt. ii, 478, No. 30, ♀.

Inhabits Colorado, Texas, Dakota, and throughout most of the eastern part of the United States; also in Canada. Several specimens were collected on the foot-hills of Colorado by Lieutenant Carpenter.

The western specimens are often more spotted with black than those of the Atlantic region.

2. *A. pilosulus*.

Alydus pilosulus, H.-Schf., Wanz. Ins. viii, 101, fig. 870; Dallas, Brit. Mus. List Hemipt. ii, 478, No. 28.

Inhabits Texas, Indian Territory, Illinois, New England, Maryland, &c. This species is quite distinct from the preceding in the acuteness of the lateral angles of the pronotum and in the spines of the femora, besides the more slender form and paler colors.

3. *A. pluto*.

Alydus pluto, Uhler, Hayden's Survey of Montana, 401, No. 2.

Inhabits Colorado, Texas, Louisiana, Idaho, and Kansas.

One specimen from the foot-hills, by Lieutenant Carpenter; also several from near Denver City, sent to me by B. H. Smith.

TOLLIIUS, Stål.

T. curtulus.

Alydus curtulus, Stål, Eugenes Resa, Ins. 234, No. 37.

Tollius curtulus, Stål, Enumeratio Hemipt. i, 213.

Inhabits California.

A single specimen received from James Behrens, San Francisco.

MEGALOTOMUS, Fieb.

M. quinquespinosus.

Lygæus 5-spinosus, Say, Journ. Acad. Phila. iv, 323, No. 4.

Alydus cruentus, H.-Schf., Wanz. Ins. viii, 100, fig. 833.

Megalotomus quinquespinosus, Stål, Enumeratio Hemipt. i, 214, No. 4.

Inhabits Colorado. Collected on the foot-hills by Lieutenant Carpenter.

The only specimen collected by the expedition deviates a little from the form usual to the Atlantic region, but does not offer characters of sufficient importance to make it a different species.

HYALYMENUS, Amyot & Serv.

H. tarsatus.

Alydus tarsatus, Fab., Syst. Rhyng. 250, No. 9.

Alydus recurvus, H.-Schf., Wanz. Ins. viii, 98, fig. 866.

Alydus pallens, Dallas, Brit. Mus. List Hemipt. ii, 476, No. 20.

Inhabits California, West Indies, Mexico, Cape Saint Lucas. Collected by John Xanthus.

STACHYOCNEMUS, Stål.

S. apicalis.

Alydus apicalis, Dallas, Brit. Mus. List Hemipt. ii, 479.

Stachyocnemus apicalis, Stål, Enumeratio Hemipt. i, 215.

Inhabits California, Texas, and Florida.

SUBFAMILY LEPTOCORISINA.

LEPTOCORISA, Lat.

L. tipuloides.

Cimex tipuloides, De Geer, Mém. iii, 354, pl. 35, fig. 18.

Myodocha tipuloides, Lat., Gen. Crust. et Ins. iii, 126.

Myodochas tipuloides, Oliv., Enc. Méthod. viii, 106, No. 2.

Leptocorisa tipuloides, Amyot et Serv., Hist. des Hémipt. 229, No. 1; Stoll, Faunaises, fig. 162.

Inhabits Texas, Mexico, and Central America.

PROTENOR, Stål.

P. Belfragei.

Protenor Belfragei, Haglund, Stettiner Ent. Zeit. xxix, 162; Stål, Enumeratio Hemipt. i, 217.

Inhabits Texas, Michigan, Illinois, Wisconsin, Colorado, and occurs rarely in Maryland.

SUBFAMILY MEROCORINA.

CORYNOCORIS, Mayr.

C. distinctus.

Crinocerus acridioides, H.-Schf., Wanz. Ins. vi, 20, fig. 575.

Merocoris distinctus, Dallas, Brit. Mus. List Hemipt. ii, 419, 2.

Inhabits Texas, Colorado, Indian Territory, Kansas, Illinois, Missouri, New England, Pennsylvania, New Jersey, Maryland, and Florida.

Very variable in depth of color, distinctness of marking, and in the shape and proportions of the head, antennæ, and legs. In Maryland, it is often common in corners of fields adjoining woods, where the small weeds and shrubs grow luxuriantly. It may be swept from the plants in such places as late as to the middle of the month of October.

SUBFAMILY MICTINA.

PACHYLIS, St. Farg. & Serv.

P. gigas.

Pachylis gigas, Burm., Handb. ii, 338, No. 3; Blanchard, Hist. Nat. Ins. 121; Dallas, Brit. Mus. List Hemipt. ii, 383.

Inhabits Arizona, New Mexico, and Mexico.

This is at once the grandest and showiest heteropterous insect yet discovered within the limits of the United States. It seems to be by no means rare in the regions where it occurs; and if its habits are similar to those of its less pretending brethren of the Eastern United States, it must make havoc with the shrubs of which it sucks the juices. The meaning of such a peculiar type of marking, including such a striking contrast of brilliant and different colors, has not yet been revealed to us. Certainly, it is not easy to see how such an arrangement of yellow lines of the corium upon a blackish ground, and of broad orange bands upon the still blacker surface of the legs, venter, and base of the third joint of the antennæ, could serve to disguise the insect so as to hide it from its enemies.

The nymph, probably in its fourth dress, is almost equally showy, but is differently painted. Its ground-color is dark steel-blue, velvety; the scutellum cadmium-orange; the venter with large broad bands along the middle; the tergum with transverse white streaks, and a row of short white lines on the middle, with a series of carmine spots each side of the middle line, and with the femora and tibiæ banded with cadmium, but with entirely blue-black antennæ.

These statements are introduced here to suggest to those who are favorably situated the importance of noting the manner of life of these exceedingly interesting insects.

MOZENA, Amyot & Serv.

1. *M. lunata*.

Archimerus lunatus, Burm., Handb. ii, 322, No. 2; H.-Schf., Wanz. Ins. vi, 24, fig. 580.
Mozena lunata, Stål, Enumeratio Hemipt. i, 134.

Inhabits Mexico, Texas, and New Mexico.

2. *M. lineolata*.

Archimerus lineolatus, H.-Schf., Wanž. Ins. vi, 25, fig. 581.

Mozena lineolata, Stål, Enumeratio Hemipt. i, 134, No. 4.

Inhabits Arizona, California, and Mexico.

In some of the less mature specimens, the apical joint is not fuscous, and the connexivum lacks the blackish spots.

3. *M. obtusa*. New sp.

Form similar to that of *M. lineolata*; dark grayish-fuscous, or pale brownish in less mature individuals. Head wrinkled, grayish pubescent, a little granulated behind the eyes; the cheeks anteriorly and the bucculæ pale cinnamomeous; antennæ moderately slender, the basal joint grayish pubescent, the second and third subequal, pale orange, the apical joint fuscous; rostrum reaching behind the anterior coxæ, infuscated, the apex piceous. Pronotum punctured with fuscous, transversely wrinkled, coated with grayish prostrate pubescence, the interspaces of the rugæ yellowish-brown; lateral angle sublunately prominent, not slenderly produced, barely curved forward, blunt, but subacuminate on the extreme tip; transverse ridge near the base very distinct, the lateral margins anterior to the prominent angles sinuated, and anterior to this unevenly serrated. Scutellum coarsely, remotely punctured, yellowish at tip. Corium dull fuscous, remotely punctured, wrinkled, the disk a little sprinkled with whitish, and the subapex with a large uneven whitish patch; membrane bronzed blackish. Legs reddish-brown, sericeous pubescent; the tarsi and tibiæ dark brown or piceous; posterior femora with a triple series of pale granules on the upper side, and with a double series of short spines beneath; tibiæ of the male stout, and a little bent outward, on the inferior middle with a stout tooth, and beyond this a series of smaller teeth extending to the tip, the tip obliquely truncated, the ridges of the under side granulated. Venter minutely punctured and rugulose, each side with a series of oblique, smooth, whitish streaks; connexivum with a square, pale spot at the base of each segment. Genital segment of the male indented each side near the tip. Female with more slender, but bent, and subprismatic posterior tibiæ.

Length, 17 to 19 millimeters. Width between the angles of pronotum, $6\frac{1}{2}$ to 7 millimeters. Width at base of hemelytra, 6 millimeters. Width of abdomen, $7\frac{1}{2}$ millimeters.

Inhabits Texas (G. W. Belfrage); and collected in the region of the Rio Pecos River, New Mexico, by Captain (now General) Pope.

This species must approach the *M. luridus*, Dallas, of Honduras, but it lacks the prominent and acute lateral angles of the pronotum described by him; also, the angles are not infuscated, and the sides of the abdomen are not black, but spotted.

It is a neat and compact-looking little species, and serves to adorn this Mexican and Central American group of Coreoids which overlap our territory.

XUTHUS, Stål.

X. auriculatus.

Capaneus auriculatus, Stål, Stettiner Ent. Zeit. xxiii, 290.

Xuthus auriculatus, Stål, Enumeratio Hemipt. i, 136.

Inhabits Mexico, Texas, and New Mexico.

One damaged specimen was examined by me in the collection brought by Dr. Berlandier from the vicinity of Matamoras, Mexico.

This species exhibits a marked contrast to all others of the group in the widely-produced sides of the pronotum, which are drawn out into flattened and almost truncated square lobes.

ARCHIMERUS, Burm.

A. calcarator.

- Coreus calcarator*, Fab., Syst. Rhynch. 192, No. 3.
Coreus alternatus, Say, Journ. Acad. Phila. iv, 317, No. 1.
Archimerus squalus, Burm., Handb. ii, 321.
Piezogaster albonotatus, Amyot et Serv., Hist. des Hémipt. 197.
Archimerus rubiginosus, H.-Schf., Wanz. Ins. vi, 83.
Archimerus muticus, H.-Schf., Wanz. Ins. vi, 52, fig. 612.
Archimerus calcarator, Stål, Hemipt. Fab. i, 47.

Inhabits Colorado. Collected on the foot-hills by Lieutenant Carpenter. Also found in Texas, Indian Territory, Wisconsin, Illinois, Michigan, and the Atlantic region generally.

SAGOTYLUS, Mayr.

S. confluentus.

- Coreus confluentus*, Say, Heteropt. New Harmony, 11, No. 1.
Crinocerus triguttatus, H.-Schf., Wanz. Ins. vi, 86, fig. 656.
Mictis? triguttata, Dallas, Brit. Mus. List Hemipt. ii, 402, No. 45.

Inhabits Arizona, California, Mexico, and Lower California.

EUTHOCTHA, Mayr.

E. galeator.

- Coreus galeator*, Fab., Syst. Rhynch. 191, No. 2.
Crinocerus tibialis, H.-Schf., Wanz. Ins. vi, 21, fig. 576.
Crinocerus galeator, Dallas, Brit. Mus. List Hemipt. ii, 408, No. 4.
Euthoctha galeator, Stål, Hemipt. Fab. i, 49, No. 1.

Inhabits Texas, Kansas, Nebraska, Illinois, Wisconsin, Michigan, and the Atlantic region generally.

SUBFAMILY ACANTHOCEPHALINA.

ACANTHOCEPHALA, Lap.

A. declivis.

- Anisoscelis declivis*, Say, Insects of Louisiana, 10; Complete Writings, i, 305.
Diactor alatus, Burm., Handb. ii, 334.
Rhynuchus declivis, Say, Heteropt. New Harmony, 12, No. 4.
Metapodius thoracicus, Dallas, Brit. Mus. List Hemipt. ii, 428.

Inhabits Texas, New Mexico, California, Mexico, Florida, Central America, Lower California, and Arizona.

This species varies greatly in size, in the shape and acuteness of the pronotal wings, in the number of spines of the femora, in the width and shape of the expansions of the tibiæ, and in the color of the antennæ. Colossal specimens from South Carolina and Florida measure as much as 34 millimeters in length. In the less mature state, the antennæ are entirely reddish-cinnamomeous. Old specimens are dark fuscous, powdered beneath with whitish.

METAPODIUS, Westw.

1. *M. femoratus.*

- Cimex femoratus*, Fab., Syst. Ent. 708, No. 55.
Lygæus femoratus, Fab., Ent. Syst. iv, 137, No. 10.
Anisoscelis nasulus, Say, Insects of Louisiana, 10; Complete Writings, i, 327.
Rhynuchus nasulus, Say, Heteropt. New Harmony, 13, No. 5.
Metapodius obscurus, Westw., in Hope Catal. Hemipt. ii, 15.
Metapodius femoratus, Dallas, Brit. Mus. List Hemipt. ii, 430, No. 5.
Lygæus femoratus, Wolf, Icones Cim. 195, fig. 189.

Inhabits Texas, Indian Territory, Florida, Louisiana, and North and South Carolina

This is the analogue of the South American *M. suratus*, and, like the other forms of the genus, becomes much more darkly-colored in the fully-matured condition, and the posterior tibiæ are widely different in the two sexes.

2. *M. granulatus*.

Metapodius granulatus, Dallas, Brit. Mus. List Hemipt. ii, 430, No. 7.

Diactor alatus, H.-Schf., Wanz. Ins. vi, 53, fig. 613.

Metapodius Thomasii, Uhler, Hayden's Survey of Montana, 339, No. 1.

Inhabits Texas, Arizona, Mexico, and San Diego, Cal.

3. *M. terminalis*.

Metapodius terminalis, Dallas, Brit. Mus. List, ii, 431, No. 10; Stål, Enumeratio Hemipt. i, 151, No. 10.

Inhabits Texas, Indian Territory, Louisiana, Missouri, Illinois, and the Atlantic region generally from Massachusetts to Florida.

In Maryland, it occurs, sometimes in large numbers, on the branches and twigs of bushes on the borders of oak-woods, in September and early October.

The immature female is often cinnamon-brown, and has the entire antennæ reddish-cinnamon color. In the fully-colored specimens of both sexes, the antennæ are fuscous, with the apical joint orange.

SUBFAMILY ANISOSCELIDINA.

LEPTOGLOSSUS, Guér.

L. phyllopus.

Cimex phyllopus, Linn., Syst. Nat. ed. 12, i, 731, No. 113.

Lygæus phyllopus, Fab., Ent. Syst. iv, 139.

Anisoscelis albicinctus, Say, Heteropt. New Harmony, 12, No. 2; Wolff, Icones Cim. 196, fig. 190.

Anisoscelis confusa, Dallas, Brit. Mus. List Hemipt. ii, 453, No. 4.

Theognis phyllopus, Mayr, Novara Reise, Hemipt. 103.

Leptoglossus albicinctus, Stål, Hemipt. Fab. i, 52, No. 5.

Anisoscelis phyllopus, Burm., Handb. ii, 332, No. 5; Westw., in Hope Catal. ii, 16.

Inhabits Texas, Arizona, Indian Territory, Mexico, Missouri, Louisiana, and the Southern States generally.

2. *L. zonatus*.

Anisoscelis zonata, Dallas, List of Hemipt. ii, 452, No. 3.

Leptoglossus zonatus, Stål, Enumeratio Hemipt. i, 162, No. 6.

Inhabits Arizona, California, Mexico, and Yaqui River (Dr. E. Palmer).

3. *L. corculus*.

Anisoscelis corculus, Say, Heteropt. New Harmony, 12, No. 1; Complete Writings, i, 326.

Theognis excellens, Mayr, Verhandl. zool.-botan. Gesell. Wien, xv, 434.

Inhabits Arizona, California, Florida, Tennessee, and Maryland. The western specimens are paler-colored than those from the southeast. One specimen was picked up in the city of Baltimore in June.

4. *L. oppositus*.

Anisoscelis oppositus, Say, Heteropt. New Harmony, 12, No. 3; Complete Writings, i, 327.

Anisoscelis tibialis, H.-Schf., Wanz. Ins. vii, 12.

Inhabits Texas, Indian Territory, North Carolina, Maryland, and Kentucky.

PTHIA, Stål.

P. picta.

- Cimex pictus*, Drury, Illust. i, 107, pl. 45, fig. 1.
Cimex ciliatus, Fab., Syst. Ent. 706, No. 46.
Cimex leprosus, Fab., Syst. Ent. 719, No. 112.
Cimex candelabrum, Goeze, Ent. Beytr. ii, 254, No. 2.
Cimex crenulatus, Fab., Ent. Syst. iv, 144, No. 33.
Lygaeus leprosus, Fab., Ent. Syst. iv, 154, No. 65.
Lygaeus dispar, Fab., Syst. Rhyng. 214, No. 43.
Alydus crenulatus, Fab., Syst. Rhyng. 250, No. 11.
Leptoscelis picta, Westw., in Hope Catal. Hemipt. ii, 17.
Anisoscelis divirus, H.-Schf., Wanz. Ins. vii, 9, fig. 685.
Anisoscelis pulverulentus, H.-Schf., Wanz. Ins. vii, 9.
Leptoscelis picta, Dallas, Brit. Mus. List Hemipt. ii, 457, No. 7.
Leptoscelis obscura, Dallas, List of Hemipt. ii, 458, No. 9.
Anisoscelis (Leptoscelis) annulipes, Guer., in La Sagra's Hist. de Cuba, Ins. 388.
Pthia picta, Stål, Hemipt. Fab. i, 53, No. 1.

Inhabits Texas, Lower California, Central America, Brazil, and the West Indies. One specimen from the Yaqui River, Mexico, collected by Dr. E. Palmer; Cuba (Professor Poey).

The enormous synonymy of this species has been occasioned by the great variability of its colors and pattern of marking. In the fresh full-colored varieties, the bright-orange bands of the pronotum contrast richly with the vivid steel-blue of the ground-color.

SUBFAMILY BERYTINA.

NEIDES, Latr.

1. *N. spinosus*.

- Berytus spinosus*, Say, Amer. Ent. i, pl. 14.
Neides trispinosus, Hope, Catal. Hemipt. ii, 24.

Inhabits Texas, Utah, Arizona, Nebraska, Wisconsin, Illinois, Michigan, Ohio, and the Atlantic region from Maine to Georgia.

2. *N. muticus*.

- Berytus muticus*, Say, Heteropt. New Harmony, 13.
Neides decurvatus, Uhler, in Hayden's Survey of Montana, 402.

Inhabits Colorado, Dakota, Washington Territory, New Hampshire, and the high mountains of North Carolina.

This is no doubt the subalpine analogue of the preceding species, and, while closely resembling it, may be at once recognized by the decurving frontal process.

SUBFAMILY PSEUDOPHLEGINA.

DASYCORIS, Dallas.

D. humilis.

- Dasycoris humilis*, Uhler, in Hayden's Survey of Montana, 403.

Inhabits Texas, Kansas, Colorado, California, and Arizona.

SCOLOPOCERUS, Uhler.

S. secundarius.

- Scelopocerus secundarius*, Uhler, in Lieutenant Wheeler's Survey of Arizona.

Inhabits Arizona. Nymph from Colorado, collected by B. H. Smith.

CERALEPTUS, Costa.

C. americanus.

- Ceraleptus americanus*, Stål, Enumeratio Hemipt. i, 219.

Inhabits Texas, California, Arizona, and Mexico.

This species varies greatly in size and in the thickness of the antennæ, and somewhat in colors and distinctness of markings.

The less mature specimens are pale dull ochreous, faintly shaded with black, and with the black of the connexivum obsolete. The old specimens are almost black; the fine deep punctures of the surface are quite black; the antennæ are wholly black, and vary in the amount of erect pubescence upon the joints, and in such specimens the pale bands of the connexivum are very distinct.

SUBFAMILY RHOPALINA.

HARMOSTES, Burm.

1. *H. reflexulus*.

Syromastes reflexulus, Say, Heteropt. New Harmony, 10, No. 1.

Harmostes costalis, H.-Schf., Wanz. Ins. ix, 270, fig. 992.

Harmostes virescens, Dallas, Brit. Mus. List Hemipt. ii, 520, No. 1.

Inhabits Colorado, Texas, Arizona, California, Dakota, Nebraska, Minnesota, Wisconsin, Illinois, and the Atlantic region from Maine to Florida. Foot-hills of Colorado, July to September (Lieutenant Carpenter).

2. *H. fraterculus*.

Syromastes fraterculus, Say, Heteropt. New Harmony, 10, No. 2.

Harmostes fraterculus, Stål, Enumeratio Hemipt. i, 221, No. 10.

Inhabits Texas, Indian Territory, Illinois, Georgia, and Maryland.

3. *H. serratus*.

Acanthia serrata, Fab., Ent. Syst. iv, 75, No. 32.

Coreus gravidator, Fab., Ent. Syst. iv, 133, No. 22.

Syrts serrata, Fab., Syst. Rhyng. 123, No. 6.

Coreus gravidator, Fab., Syst. Rhyng. 199, No. 38.

Harmostes perpunctatus, Dallas, Brit. Mus. List Hemipt. ii, 521, No. 3.

Harmostes serratus, Stål, Hemipt. Fab. i, 67, No. 1.

Inhabits Arizona, Mexico, California, and Cuba.

AUFEIUS, Stål.

A. impressicollis.

Aufeius impressicollis, Stål, Enumeratio Hemipt. i, 222.

Inhabits Texas, Dakota, Arizona, and California.

CORIZUS, Fallen.

1. *C. hyalinus*.

Lygæus hyalinus, Fab., Ent. Syst. iv, 168, No. 115.

Coreus hyalinus, Fab., Syst. Rhyng. 201, No. 45.

Rhopalus truncatus, Fieber, Europ. Hemipt. 234, No. 4.

Corizus hyalinus, Stål, Hemipt. Fab. i, 68, No. 2.

Corizus viridicatus, Uhler, in Hayden's Survey of Montana, 404.

Inhabits Texas, Colorado, Nebraska, Dakota, Cuba, and Mexico.

This species is quite variable in colors, and somewhat in proportions. Specimens from Cuba and San Domingo are suffused with red and more distinctly pubescent than the others from Texas and Dakota. At the time when we described our *C. viridicatus*, the materials were not at hand in this country to connect the varieties with *C. hyalinus*, Fab. Specimens from the foot-hills of Colorado, by Lieutenant Carpenter.

2. *C. sidae*.

Lygaeus sidae, Fab., Ent. Syst. iv, 169, No. 116.

Coreus sidae, Fab., Syst. Rhyng. 201, No. 47.

Corizus sidae, Signoret, Ann. Soc. Ent. France, ser. 3, vii, 95, No. 32; Stål, Hemipt. Fab. i, 69.

Rhopalus sidae, Gner., in La Sagra's Hist. de Cuba, Ins. 355.

Inhabits Texas, Indian Territory, Arizona, Mexico, Cuba, Brazil, and Florida.

On one occasion, in the early part of June, this species occurred in considerable numbers near the city of Baltimore, but since that time not a single specimen has been captured in this vicinity.

3. *C. punctiventris*.

Corizus punctiventris, Dallas, Brit. Mus. List Hemipt. ii, 526, No. 3.

Corizus borealis, Uhler, Proc. Acad. Nat. Sci. Phila. 1861, 234.

Corizus punctiventris, Stål, Enumeratio Hemipt. i, 223, No. 8.

Inhabits Colorado, Arizona, California, Washington Territory, British America, Walrussia, Canada, Massachusetts, and south to Pennsylvania. In York County, in the latter State, I collected a few specimens, in the month of August.

It varies very much in color and in the amount of black upon the tergum, so that it seems to include the European *C. crassicornis*, Linn. One variety has the black bands of the connexivum reduced to mere points. Robert Kennicott collected specimens in the vicinity of the Mackenzie River, and also near the Yukon River. Mr. Scudder kindly gave me a specimen from the region of the Saskatchewan, and Mr. Kennicott collected others in the same locality. Unfortunately, his specimens have been lost to science by the great fire in Chicago.

Like *C. lateralis* and *C. hyalinus*, this species becomes suffused with a red color, which totally changes its appearance. This is also sometimes conspicuously the case in very soft recent specimens.

4. *C. lateralis*.

Coreus lateralis, Say, Journ. Acad. Phila. iv, 320, No. 4; Complete Writings, ii, 245, No. 4.

Corizus lateralis, Signoret, Ann. Soc. Ent. France, ser. 3, vii, 97, No. 36.

Inhabits Texas, Colorado, Kansas, Missouri, Illinois, and the Atlantic region generally.

The rufous stripe on the sides of the body underneath are sometimes changed from red to fuscous, and are occasionally obsolete.

In Maryland, it may be found by beating rank growths on the borders of woods; the first brood late in May to early in July, and a second brood in August, September, and October. It lives over winter in the adult state.

5. *C. nigristernum*.

Corizus nigristernum, Signoret, Ann. Soc. Ent. France, ser. 3, vii, 100, No. 41; Stål Enumeratio Hemipt. i, 225, No. 20.

Inhabits Arizona, Texas, Illinois, New England, New York, New Jersey, Pennsylvania, and Maryland.

LEPTOCORIS, Hahn.

L. trivittatus.

Lygaeus trivittatus, Say, Journ. Acad. Phila. iv, 322, No. 2.

Leptocoris trivittatus, Stål, Enumeratio Hemipt. i, 226.

Inhabits Colorado, Arizona, San Francisco, California, Kansas, Missouri, and Mexico.

JADERA, Stål.

J. hamatoloma.

Leptocoris hamatoloma, H.-Schf., Wanz. Ins. viii, 103, fig. 873.

Serinctha hamatoloma, Dallas, Brit. Mus. List; ii, 463, No. 17.

Lygæus (Serinctha) hamatolomus, Guer., in La Sagra's Hist. de Cuba, Ins. 393.

Inhabits Texas, Colorado, Arizona, California, Cuba, and Mexico.

There is a form of this with rudimentary wing covers, which is moderately common in Texas, Arizona, and Cuba.

FAMILY LYGÆIDÆ.

LYGÆUS, Fab.

1. *L. turcicus*.

Lygæus turcicus, Fab., Syst. Rhyng. 118, No. 61.

Lygæus (Graptolomus) turcicus, Stål, Hemipt. Fab. i, 73, No. 10.

Inhabits Texas, Indian Territory, Illinois, Missouri, and the Atlantic and Gulf regions throughout.

2. *L. reclinatus*.

Lygæus reclinatus, Say, Journ. Acad. Phila. iv, 321, No. 1; Complete Writings, ii, 245.

Lygæus (Graptolomus) reclinatus, Stål, Enumeratio Hemipt. iii, 107.

Inhabits Colorado, Texas, California, Arizona, New Mexico, Kansas, Dakota, Oregon, and Washington Territory.

This form is placed apart provisionally from *L. turcicus*, Fab., merely because the full history of the species has not yet been elaborated. So far as the evidence from the Atlantic region goes, it is merely one of the forms of that species. The dusky variety, however, has not yet been discovered in the eastern regions of the United States. It lives in numbers, like its congeners, upon the species of *Asclepias*.

3. *L. costalis*.

Lygæus costalis, H.-Schf., Wanz. Ins. vii, 22, fig. 706.

Lygæus (Graptolomus) costalis, Stål, Enumeratio Hemipt. iv, 107, No. 17.

Inhabits Arizona, Texas, California, and Mexico.

Sufficient acquaintance with the nature of this form may establish it to be the form of *L. turcicus* dependent upon the table-lands of South-western North America.

4. *L. Kalmii*.

Lygæus (Graptolomus) Kalmii, Stål, Enumeratio Hemipt. iv, 107, No. 19.

Inhabits California, Mexico, and Eastern North America.

This is a variety still nearer than the preceding to *L. turcicus*, but differing from it in the amount of black on the hemelytra, and in having the membrane margined with white. It is retained here for the present merely in deference to the views of Dr. Stål.

5. *L. truculentus*.

Lygæus (Graptolomus) truculentus, Stål, Stettiner Ent. Zeit. xxiii, 308.

Inhabits California.

ONCOPELTUS, Stål.

1. *O. gutta*.

Lygæus gutta, H.-Schf., Wanz. Ins. vii, 20, fig. 703.

Oncopeltus gutta, Stål, Enumeratio Hemipt. iv, 101, No. 4.

Inhabits California, Arizona, and Mexico.

2. *O. varicolor*.

Lygæus varicolor, Fab., Ent. Syst. iv, 149, No. 49.

Lygæus alternans, H.-Schf., Wanz. Ins. ii, 20, fig. 704.

Oncopeltus varicolor, Stål, Hemipt. Fab. i, 70; Enumeratio Hemipt. iv, 102, No. 6

Inhabits California, Mexico, Central America, Brazil, &c.

ERYTHRISCHIUS, Stål.

1. *E. sandarachatus*.

Lygæus sandarachatus, Say, Heteropt. New Harmony, 13.

Lygæus unifasciatus, H.-Schf., var., Wanz. Ins. viii, 105, fig. 376.

Erythriscchius sandarachatus, Stål, Enumeratio Hemipt. iv, 103.

Inhabits California, Mexico, &c.

2. *E. fasciatus*.

Lygæus aulicus, H.-Schf., Wanz. Ins. vi, 76, fig. 646.

Lygæus fasciatus, Dallas, Brit. Mus. List, ii, 538, No. 17.

Erythriscchius fasciatus, Stål, Enumeratio Hemipt. iv, 103, No. 14.

Inhabits Arizona, Texas, Mexico, and the Atlantic region generally.
In Maryland, it is common on the purple *Asclepias*.

MELANOPLEURUS, Stål.

1. *M. Belfragii*.

M. Belfragii, Stål, Enumeratio Hemipt. iv, 109, No. 34.

Inhabits Texas.

2. *M. bistriangularis*.

Lygæus bistriangularis, Say, Heteropt. New Harmony, 14, No. 3.

Lygæus marginellus, Dallas, Brit. Mus. List, ii, 548, No. 51.

Lygæus vicinus, Dallas, Brit. Mus. List, ii, 549, No. 52.

Melanopleurus bistriangularis, Stål, and *M. marginellus*, Stål, Enumeratio Hemipt. iv, 109.

Inhabits Texas, Mexico, Arizona, California, and Central America.

OCHROSTOMUS, Stål.

1. *O. pyrrhopterus*.

Ochrostomus pyrrhopterus, Stål, Enumeratio Hemipt. iv, 110, No. 40.

Inhabits Texas and Mexico.

2. *O. lineola*.

Lygæus lineola, Dallas, Brit. Mus. List, ii, 549, No. 53.

Ochrostomus lineola, Stål, Enumeratio Hemipt. iv, 110.

Inhabits Texas, New Mexico, Florida, and Georgia.

MELANOCORYPHUS, Stål.

1. *M. pusio*.

Melanocoryphus pusio, Stål, Enumeratio Hemipt. iv, 112.

Inhabits Texas.

2. *M. obscuripennis*.

Melanocoryphus obscuripennis, Stål, Enumeratio Hemipt. iv, 112, No. 3.

Inhabits Texas.

3. *M. bicrucis*.

Lygæus bicrucis, Say, Journ. Acad. Phila. iv, 322, No. 3.

Lygæus flavomarginellus, Stål, Eugenies Resa, Ins. 241.

Lygæus rubescens, Stål, Rio Hemipt. Fanna, i, 37.

Lygæus bitransversus, Signoret, Ann. Soc. Ent. France, ser. 3, viii, 947.

Melanocoryphus bicrucis, Stål, Enumeratio Hemipt. iv, 113, No. 6.

Inhabits California (J. Behrens), Nevada, New Mexico, Texas, Louisiana, Kansas, Missouri, and the Southern States east into Georgia and Florida. It is rare in Maryland, and extends as far south as Rio Janeiro, Brazil.

Its food-plant has not yet been reported, and it is hoped that western collectors will direct their attention to its habits, and make them known.

4. *M. facetus*.

Lygæus facetus, Say, Heteropt. New Harmony, 13, No. 2.

Melanocoryphus facetus, Stål, Enumeratio Hemipt. iv, 113, No. 9.

Inhabits Texas, Mexico, California, Florida, New Jersey, Louisiana, the sea-coast of Maryland, &c. One specimen from the foot-hills of Colorado, collected by Lieutenant Carpenter in July.

5. *M. admirabilis*.

Lygæus admirabilis, Uhler, in Hayden's Survey of Montana, 405, No. 5.

Inhabits Colorado.

6. *M. lateralis*.

Lygæus lateralis, Dallas, Brit. Mus. List, ii, 550, No. 58.

Melanocoryphus lateralis, Stål, Enumeratio Hemipt. iv, 113, No. 12.

Inhabits Texas and Mexico.

7. *M. mimulus*.

Melanocoryphus (Ochrimnus) mimulus, Stål, Enumeratio Hemipt. iv, 113, No. 15.

Inhabits Texas.

SUBFAMILY NYSIINA.

NYSIUS, Dallas.

1. *N. californicus*.

Nysius californicus, Stål, Eugenies Resa, Hemipt. 242, No. 56.

Inhabits Texas, California, Arizona, Colorado, Dakota, South Carolina, and Maryland. Rare in the latter State, but common in California and Arizona.

2. *N. angustatus*.

Nysius angustatus, Uhler, in Hayden's Survey of Montana, 406, No. 2.

Inhabits Dakota, California, Texas, Kansas, &c. Collected above timber-line on the mountains of Colorado, in June, by Lieutenant Carpenter.

3. *N. grœnlandicus*.

Lygæus grœnlandicus, Zett., Insecta Lapponica, 262, No. 3.

Nysius grœnlandicus, Stål, Enumeratio Hemipt. iv, 3.

Inhabits Greenland, Labrador, British America, and Unalaska.

Sufficiently large series for full comparison may show that this and the preceding are only varieties of a single species, in which case the latter name will have priority.

BELONCHILUS, Uhler.

B. numenius.

Lygæus numenius, Say, Heteropt. New Harmony, 15, No. 9.

Belonchilus numenius, Uhler, Proc. Boston Soc. Nat. Hist. 1871, p. 12.

Inhabits Arizona, Ohio, Illinois, and New England. Very rare in Maryland.

ORSILLUS, Dallas.

O. scolopax.

Lygæus scolopax, Say, Heteropt. New Harmony, 15, No. 8.

Inhabits Texas, Kansas, Missouri, Nebraska, Illinois, and Maine. Common upon dry grass and sedges near Portland, Me., in the month of August. Met with in Maryland, a few miles south of Baltimore, while I was sweeping stubble-fields in August and September. Usually, it is rare in this region.

SUBFAMILY CYMINA.

ISCHNORHYNCHUS, Fieb.

I. didymus.

Lygæus didymus, Zett., Vet. Ak. Handl., 1819, 71, No. 20.

Lygæus geminatus, Say, Heteropt. New Harmony, 14, No. 7.

Cymus franciscanus, Stål, Eugénies Resa, Ins. 252, No. 84.

Ischnorhynchus didymus, Stål, Enumeratio Hemipt. iv, 124, No. 1.

Inhabits California, Texas, Kansas, Nebraska, Illinois, the Eastern United States, and Canada. Europe and Siberia.

In Maryland, it is found sparingly upon bushes and shrubbery near the edges of woods.

CYMUS, Hahn.

1. *C. angustatus*.

Cymus angustatus, Stål, Enumeratio Hemipt. iv, 126, No. 2.

Inhabits Texas, Kansas, and the Atlantic region.

2. *C. breviceps*.

Cymus breviceps, Stål, Enumeratio Hemipt. iv, 127, No. 4.

Inhabits Texas and the Southern States.

CYMODEMA, Spin.

C. tabida.

Cymodema tabida, Spinola, Essai, 213.

Cymodema tabida, Fieb., Europ. Hemipt. 204.

Inhabits California, Texas, New Jersey, and Maryland, in July and August, upon undergrowth in thin woods.

After close comparison with specimens from Europe, I do not find differences of sufficient importance to separate the two forms.

SUBFAMILY BLISSINA.

ISCHNODEMUS, Fieb.

I. falicus.

Lygæus falicus, Say, Heteropt. New Harmony, 15, No. 10; Complete Writings, i, 331.

Micropus falicus, Signoret, Ann. Soc. Ent. France, 3d ser. v, 27, pl. 2, fig. 5.

Inhabits Texas, Dakota, Kansas, Louisiana, and the United States generally east of the Mississippi basin. In Maryland, it passes the

winter beneath stones in sheltered places, and may be swept from plants in damp situations in June and July.

Specimens from the sea-coasts of Maryland and North Carolina sometimes attain to a size twice as great as that commonly found farther inland. Moisture combined with warmth seems most favorable to its greatest development.

BLISSUS, Burm.

B. leucopterus.

Lygeus leucopterus, Say, Heteropt. New Harmony, 14, No. 5; Complete Writings, i, 329.

Micropus leucopterus, Signoret, Ann. Soc. Ent. France, 3d ser. v, 31, pl. 2, fig. 11.

Inhabits Texas, California, Kansas, Nebraska, Wisconsin, Minnesota, Illinois, Michigan, and generally throughout the Atlantic region.

The short-winged form seems to be more common in New England than in the Southern States.

SUBFAMILY GEOCORINA.

GEOCORIS, Fallen.

1. *G. Scudderi*.

Geocoris Scudderi, Stål, Enumeratio Hemipt. iv, 135, No. 7.

Inhabits Texas.

2. *G. punctipes*.

Salda bullata var. *punctipes*, Say, Heteropt. New Harmony, p. 19. Complete Writings, i, 336.

Ophthalmicus luniger, Fieb., Wien. Entom. Monats. v, 269, No. 4.

Inhabits Texas, Indian Territory, Colorado, and the Atlantic region.

3. *G. bullata*.

Salda bullata, Say, Heteropt. New Harmony, 18, No. 2; Complete Writings, i, 336.

Ophthalmicus borealis, Dallas, Brit. Mus. List Hemipt. ii, p. 585, No. 8.

Inhabits Illinois, Canada, &c. One specimen from the foot-hills of Colorado, in July, by Lieutenant Carpenter. Very rare in the vicinity of Baltimore.

The color of the legs, antennæ, rostrum, head, and pleural pieces vary considerably in the amount of black or piceous color upon them. The legs are occasionally destitute of black, or they have only a few black points, or they may be black, excepting only the base and tip of femora.

4. *G. pallens*.

Geocoris pallens, Stål, Eugenes Resa, Hemipt. 250; Öfv. Vetensk. Akad. Förhandl. 1854, 236; Enumeratio Hemipt. iii, 136, No. 13.

Inhabits California.

This will probably prove to be only a form of the preceding species; but at present, in the absence of a sufficient series for comparison, it will be best to keep the two separate.

5. *G. tristis*.

Geocorus tristis, Stål, Öfv. Vetensk. Akad. Förhandl. 1854, 236; Eugenes Resa, Hemipt. 249, No. 77.

Inhabits California.

6. *G. piccus*.

Salda picca, Say, Heteropt. New Harmony, 18, No. 1; Complete Writings, i, 336, No. 1.

Inhabits Colorado, Illinois, New York, Massachusetts, Pennsylvania; and a single specimen only, thus far, from Maryland.

7. *G. uliginosus*.

Salda uliginosa, Say, Heteropt. New Harmony, 19, No. 3; Complete Writings, i, 337.

Ophthalmicus niger, Dallas, Brit. Mus. List Hemipt. ii, 586, No. 9.

Ophthalmicus lateralis, Fieb., Wien. Entom. Monats. v, 271, No. 9.

Inhabits Texas, Kansas, Dakota, Missouri, Illinois, New England, New Jersey, Maryland, and Georgia.

8. *G. limbatus*.

Geocoris limbatus, Stål, Enumeratio Hemipt. iv, 136, No. 16.

Inhabits Dakota, Illinois, Massachusetts, and New Jersey.

SUBFAMILY PACHYGRONTHINA.

PHLEGYAS, Stål.

P. annulicrus.

Phlegyas annulicrus, Stål, Enumeratio Hemipt. iv, 138.

Inhabits Texas, South Carolina, and New Jersey.

OEDANCALA, Amyot & Serv.

1. *O. dorsalis*.

Pamera dorsalis, Say, Heteropt. New Harmony, 17, No. 8.

Oedancala dorsilinea, Amyot & Serv., Hemipt. 258, pl. 12, fig. 6.

Inhabits Texas, Indian Territory, and the Eastern United States from Maine to Florida; common in Maryland.

2. *O. crassimana*.

Lygus crassimanus, Fab., Svst. Rhyng. 233, No. 145.

Oedancala crassimana, Stål, Enumeratio Hemipt. iv, 139, No. 3.

Inhabits Texas, Georgia, Maryland, and New Jersey.

3. *O. Cubana*.

Oedancala Cubana, Stål, Enumeratio Hemipt. iv, 139, No. 1.

Inhabits Texas, Cuba, and Florida.

SUBFAMILY OXYCARENINA.

CROPHIUS, Stål.

C. Bohemani.

Cymus Bohemani, Stål, Eugenic Resa, Hemipt. 251.

Crophius Bohemani, Stål, Enumeratio Hemipt. iv, 142, No. 2.

Inhabits California and Arizona.

SUBFAMILY MYODOCHINA.

PTOCHIOMERA, Say.

1. *P. nodosa*.

Ptochiomera nodosic, Say, Heteropt. New Harmony, 18; Complete Writings, i, 335, No. 9.

Aphanus clareatus, Dallas, Brit. Mus. List Hemipt. ii, 560, No. 5.

Plociomera nodosa, Stål, Enumeratio Hemipt. iv, 153, No. 3.

Inhabits Texas, Missouri, Louisiana, Florida, Georgia, &c.

In Maryland, it is common beneath stones, and is one of the first to become active in spring when the severe cold of winter is past. In the autumn, it may be met with beneath the stems of dried or drying plants and bushes which have dropped their leaves.

The short-winged form is common in the granitic and primitive regions of this State, but it is generally full-winged in the newer and more southern portions of this region, while farther south it is always (?) full-winged.

2. *P. minima*.

Lygaeus (Beosus) minimus, Gner., in La Sagra's Hist. de Cuba, Ins. 398.

Plociomera minima, Stål, Enumeratio Hemipt. ii, 153.

Inhabits Cuba, Florida, Louisiana, and Texas.

3. *P. puberula*.

Plociomera puberula, Stål, Enumeratio Hemipt. iv, 153, No. 8.

Inhabits Texas.

4. *P. fuscicornis*.

Plociomera fuscicornis, Stål, Enumeratio Hemipt. iv, 152, No. 2.

Inhabits Texas.

CNEMODUS, H.-Schf.

C. mavortius.

Astemma mavortia, Say, Heteropt. New Harmony, 19; Complete Writings, i, 337.

Cnemodus brevipeunis, H.-Schf., Wanz. Ins. ix, 184, fig. 948.

Inhabits Texas, Missouri, and the Atlantic region throughout. In Maryland, it is common beneath stones and rubbish from March to November.

CARPILIS, Stål.

C. ferruginea.

Carpilis ferruginea, Stål, Enumeratio Hemipt. iv, 153, No. 1.

Inhabits Texas and New Mexico.

LIGYROCORIS, Stål.

1. *L. sylvestris*.

Cimex sylvestris, Linn., Faun. Suec. 256.

Plociomerus sylvestris, Fieb., Europ. Hemipt. 171.

Plociomerus diffusus, Uhler, Proc. Boston Soc. Nat. Hist. 1871, 9.

Pameru contracta, Say, Heteropt. New Harmony, 16, No. 2.

Inhabits almost the whole continent of North America, and not uncommon in various parts of continental Europe.

We have examined specimens which were collected in British and

Russian America, by Robert Kennicott; from near Quebec, by the Abbé Provancher; from the foot-hills of Colorado, by Lieutenant Carpenter; and I have myself collected numerous specimens in various parts of Eastern Maine, Massachusetts, Rhode Island, Connecticut, Pennsylvania, New Jersey, and Maryland. In the latter State, it may be swept from grassy wild spots adjacent to *Sphagnum* swamps. It occurs also on the high mountains of North Carolina.

2. *L. constrictus*.

Pamera constricta, Say, Heteropt. New Harmony, 15, No. 1; Complete Writings, i, 332.

Beos abdominalis, Guer., in La Sagra's Hist. de Cuba, Ins. 397.

Plociomera piligera, Stål, Stettin. Ent. Zeit. xxiii, 312.

Inhabits Mexico, Cuba, Florida, Louisiana, Texas, and the Atlantic region from Massachusetts southward.

The spines beneath the anterior femora are variable in size and number; and much allowance must be made for the color and pattern of marking of specimens, as much depends upon their maturity.

I have collected specimens on the Atlantic peninsula of Maryland and Virginia, which had been mutilated before attaining maturity. Such specimens had one side, or some part of the pronotum, abdomen, or wing-covers, indented, distorted, or forced away; and, in two or more instances, the antenna of one side was much shortened and thickened, causing the basal and middle joints to be abnormally short. The females are proportionally shorter and stouter than the males; but, in this respect, there is also much variation. Some males are almost as robust as the females.

MYODOCHA, Latr.

M. serripes.

Myodochus serripes, Oliv., Encyc. Méthod. viii, 106.

Myodocha petiolata, Say, Heteropt. New Harmony, 19 [erroneously reprinted by Dr. Fitch, in Trans. N. Y. State Agric. Soc., *M. opetiolata*]; Complete Writings, i, 337.

Chiroleptes raptor, Kirby, Fauna Bor.-Amer. iv, 231.

Myodocha serripes, Amyot et Serv., Hemipt. 258; H.-Schf., Wanz. Ins. ix, 213, fig. 966.

Inhabits Texas, Mexico, Indian Territory, Illinois, Missouri, Louisiana, and the Atlantic region generally.

In Maryland, it lives beneath stones in the spring and early summer. When the warm weather sets in, it spreads into the adjoining meadows and grassy spots to find sustenance. In the autumn, it may again be found beneath stones and rubbish; and, as the severe weather approaches, it hibernates in crevices of bark, beneath leaves, and under the stones in sheltered places.

HERÆUS, Stål.

1. *H. plebejus*.

Heræus plebejus, Stål, Enumeratio Hemipt. iv, 147, No. 2.

Inhabits Texas, Arizona, New Jersey, &c.

2. *H. insignis*.

Heræus insignis, Uhler, in Hayden's Survey of Montana, 407.

Inhabits Utah, Colorado, Minnesota, and Canada.

PAMERA, Say.

1. *P. longula*.

Rhyparochromus longulus, Dallas, Brit. Mus. List, ii, 578, No. 50.
Pamera longula, Stål, Enumeratio Hemipt. iii, 148, No. 5.

Inhabits Cuba, Florida, Texas, Mexico, Louisiana, and the Southern States.

2. *P. parvula*.

Rhyparochromus parvulus, Dallas, Brit. Mus. List, ii, 576, No. 45.
Plociomerus Amyoti, Guer., in La Sagra's Hist. de Cuba, Ins. 400.
Plociomerus vinulus, Stål, Eugénies Resa, Hemipt. 246, No. 66.

Inhabits Cuba, Hayti, Florida, Texas, Mexico, Georgia, and North Carolina. In the latter State, it occurs upon the Black Mountain range.

It is abundant in Florida in the month of June; and, in the western part of Hayti, it occurs in small swarms upon low plants in damp spots and in gardens.

3. *P. curvipes*.

Pamera curvipes, Stål, Enumeratio Hemipt. iv, 148, No. 9.

Inhabits Texas, New Mexico, and South Carolina.

4. *P. bilobata*.

Pamera bilobata, Say, Heteropt. New Harmony, 17, No. 7; Complete Writings, i, 334, No. 7.
Rhyparochromus scutellatus, Dallas, Brit. Mus. List, ii, 575, No. 43.
Plociomerus Serrillei, Guer., in La Sagra's Hist. de Cuba, Ins. 399.
Plociomerus ochroceras, Stål, Eugénies Resa, Hemipt. 245, No. 64.

Inhabits Texas, Louisiana, Florida, Georgia, South Carolina, the Black Mountain region of North Carolina, Cuba, and Mexico.

Several specimens were swept by myself from low plants in a wet spot south of Baltimore, in August.

5. *P. setosa*.

Pamera setosa, Stål, Enumeratio Hemipt. iv, 150, No. 21.

Inhabits Texas.

6. *P. nitidicollis*.

Pamera nitidicollis, Stål, Enumeratio Hemipt. iv, 150, No. 22.

Inhabits Texas.

7. *P. basalis*.

Rhyparochromus basalis, Dallas, Brit. Mus. List, ii, 575, No. 42.
Pamera basalis, Stål, Enumeratio Hemipt. iv, 152, No. 37.

Inhabits Texas, Nebraska, Minnesota, Illinois, Pennsylvania, Missouri (C. V. Riley), and Maryland. It is common near Baltimore on the soils in the region of the metamorphic rocks; living in the wheat and grass fields during spring and summer, and hibernating beneath the rocks upon the arrival of cold weather.

OZOPHORA, Uhler.

O. picturata.

Ozophora picturata, Uhler, Proc. Boston Soc. Nat. Hist. 1871, p. 10.

Inhabits Texas, Maryland, and Pennsylvania.

Very rare near Baltimore; obtained from spots covered with rank growths late in July.

TEMPYRA, Stål.

T. biguttula.

Tempyra biguttula, Stål, Enumeratio Hemipt. iv, 157.

Inhabits Texas.

TRAPEZONOTUS, Fieb.

1. *T. nebulosus*.

Lygus nebulosus, Fallen, Mon. Cim. 65, No. 7.

Pamera fallax, Say, Heteropt. New Harmony, 17, No. 6; Complete Writings, i, 334.

Trapezonotus nebulosus, Fieb., Europ. Hemipt. 190.

Inhabits Europe, Texas, Colorado, Montana, Illinois, British America, Canada, New England, and California.

2. *T. rufipes*.

Trapezonotus rufipes, Stål, Enumeratio Hemipt. iv, 159, No. 2.

Inhabits Texas.

EREMOCORIS, Fieb.

E. ferus.

Pamera fera, Say, Heteropt. New Harmony, 16, No. 4.

Rhyparochromus borealis, Dallas, Brit. Mus. List, ii, 565.

Inhabits Texas, California, Montana, Illinois, New England, New York, Canada, South Carolina, White Mountains (Mr. Samuel H. Scudder); very rare in Maryland.

This species varies considerably in the shape of the pronotum, in the relative length of its two lobes, and in the width of the lateral margins. The legs also vary from pale piceous to deep black.

MEGALONOTUS, Fieb.

M. unus.

Pamera una, Say, Heteropt. New Harmony, 16, No. 5.

Inhabits Texas, Maryland, Pennsylvania, and New York.

One specimen captured, October 22, near Baltimore.

EMBLETHIS, Fieb.

E. arenarius.

Cimex arenarius, Linn., Fauna Suecica, 955.

Emblethis arenarius, Fieb., Europ. Hemipt. 198, No. 2.

Inhabits Europe, where it lives on sandy spots about the roots of plants. In Colorado, it seems to be quite common; also from Texas, Illinois, Nevada, Massachusetts, and Georgia.

CISTALIA, Stål.

C. Signoretii.

Platygaster Signoretii, Guer., in La Sagra's Hist. de Cuba, Ins. 296.

Cistalia Signoretii, Stål, Enumeratio Hemipt. iv, 165.

Inhabits Texas, Cuba, Nevada, and California.

CRYPHULA, Stål.

C. parallelogramma.

Cryphula parallelogramma, Stål, Enumeratio Hemipt. iv 165.

Inhabits Texas.

PHYGADICUS, Fieb.

P. Behrensii. New sp.

Form and general appearance of *P. urtica*, Fieb. Bronze black, closely pubescent. Head black, very convex, densely, somewhat coarsely, roughly punctured, the base with a small yellow point; base of the head not so much narrowed as in *P. urtica*; antennæ stout, testaceous or pale piceous; the basal joint black, excepting at its base and tip; second joint longest, a little blackish near each end; third and fourth joints equal, the former black on the middle, the latter infuscated almost throughout; rostrum reaching behind the anterior coxæ, piceous; the apex of the first and second joints testaceous. Pronotum moderately flat, black, closely, rather coarsely punctured, less closely behind, narrower and less rounded at and behind the anterior angles than in *P. urtica*; the lateral margins yellow, moderately sinuated; the posterior margin broadly sinuated; running forward from its middle are three short, yellow lines; humeral angles moderately prominent, black, slenderly margined with yellow. Beneath, densely hoary pubescent, opaque black; posterior margins of the pro- and meta-plenræ, coxæ, trochanters, osteoles, and legs testaceous. Femora largely pitchy-black or pointed with black, roughly indented over the outer and inner surfaces; tibiæ on the base, middle, and apex banded with black; the chief part of the last tarsal joint and the apex of the basal joint piceous. Scutellum black, densely and finely punctured at base, more remotely and coarsely toward the apex; the apex and adjoining edge testaceous. Corium grayish testaceous, with a large blackish cloud on the disk and a black spot at tip, also a black band invading the base of the membrane, but omitting most or all of the bounding thick nervule; the punctures remote, black, moderately coarse; the clavus black, excepting its edges. Abdomen dull black, minutely, densely punctured and shagreened, the outer edge, a spot on the middle of the outer margin of the segments, the inner margins of the ovipositor valves and segments and the adjoining edges yellow; genital segments more or less rufous apically.

Length, 7 to $7\frac{1}{2}$ millimeters. Width of pronotum, $1\frac{3}{4}$ to 2 millimeters.

Inhabits California (James Behrens).

To Mr. James Behrens we are indebted for this interesting representative of an eastern genus, hitherto undiscovered on the American continent. Through his indefatigable exertions much has been contributed to the knowledge of the Pacific forms of many of the groups of insects, and it is with peculiar pleasure that we signalize his services in the department of the *Hemiptera* by giving his name to this species.

HELONOTUS. New gen.

Aspect similar to *Henestaris*. Elongate-ovate. Head a little wider than long; the face convexly decurving; inferior cheeks tumid, separated from the superior ones by a deep groove; eyes round, very prominent, projecting wider than the fore sides of the pronotum; tylus forming a much projecting, cylindrical peak, the surface each side of it depressed; bucculæ disk-like, limited to the tip of the superior cheeks; gular surface obliquely ridged each side of the base. Rostrum stout; basal joint scarcely more than one-half the length of the throat; second joint hardly longer than the apical one; the middle joint shorter than the apical one. Antennæ stout, about as long as from the front to the

base of the pronotum; the antenniferous ridge stout and running directly down from the eye; basal joint very short, hardly reaching beyond the tip of the tylus, second longest, apical one thickest, fusiform, not quite as long as the second. Pronotum long, trapezoidal, gradually narrowing anteriorly, the transverse diameter convex, the longitudinal one feebly convex, the surface much more elevated than the plane of the corium and scutellum; collum contracted, flattened, on the under side, divided on the prosternum; plagiæ placed far back on a convex ridge, which is continued to the lateral margin; behind this the surface is transversely grooved, causing the lateral margins to be sinuated; behind this to the posterior margin is a still more elevated, wider, transverse ridge; the lateral margins bluntly rounded, not recurved, deep; posterior margin truncate. Corium broad, blunt, sinuated on the posterior margin, scarcely longer than the membrane, punctate in longitudinal rows; membrane with about five long straight nervures, of which the next to the outer one is forked, and at the ends of the nervures are several small closed cells [these are sometimes absent]. Anterior femora very stout and short; the under surface rough, with a curved channel on the outer side, and a row of uneven teeth on the inner.

H. abbreviatus. New sp.

Thick, deep, long-ovate, grayish pale brown. Head coarsely, remotely punctured, the punctures deeply sunken and with raised margins; surface very uneven, depressed near the eyes, rufous or piceous; bucculæ and antennæ ochre-yellow; tylus blackish, with rows of coarse, uneven punctures; antennæ annulated with black, once on the basal joint, twice on the second, and all but the base and tip of the third blackish, the fourth rufo-piceous or fuscous. Rostrum reaching between the anterior and middle coxæ, brownish-yellow, piceous along the middle of the joints and at tip. Pronotum tawny or rust-brown, obsoletely carinated; the callosities, two short streaks adjoining the humeral angles, and sometimes a trace or two on the middle of the sides and on the anterior margin piceous; surface deeply, unevenly, coarsely punctured; humeral angles distinctly tumid, the anterior angles rectangular; lateral margins bluntly rounded; pectus and under side of head powdered with white, coarsely, rather remotely punctured; the mesosternum each side and one or more spots on the metapleura piceous. Femora black, excepting at base and tip, and a ring at base and another near the tip of tibiæ black; the tarsi faintly tinged with piceous. Scutellum tawny, tinged with rufous, infuscated and carinated on the middle line, coarsely, closely punctured. Hemelytra ochre-yellow, a little infuscated at base, the posterior, raised boundary-edge of the corium with angulated black line extending inward as far as the clavus; both corium and clavus coarsely punctured in longitudinal rows; membrane whitish. Tergum piceous-blackish or chestnut-brown, coarsely, a little remotely, punctured; connexivum with alternate quadrangular spots of whitish and black. Venter chestnut-brown or piceous, more or less tinged with rufous, erodedly, deeply, remotely punctured, the base more or less infuscated, pruinose. ♂ ♀.

Length, 3 to $5\frac{1}{4}$ millimeters. Width of pronotum, $1\frac{1}{2}$ to 2 millimeters.

Inhabits Nebraska, Missouri, Illinois, Michigan, Massachusetts, New York, Grimsby, Canada (Mr. Petit), New Jersey, Maryland, and North Carolina.

It occurs in Maryland very abundantly in places where the plants and weeds grow rank, and also on small bushes forming the undergrowth in open woods.

In Central Maryland and Eastern Pennsylvania, it may be swept from the bushes as early as the middle of May and as late as November. Occasionally, it swarms in clover-fields, and no doubt does considerable injury to that crop by withdrawing the sap from the tender heads before they have become full-blown. On the other hand, it and the common *Lygus lineolaris* and *Plagiognathus obscurus*, no doubt help to fertilize the flowers by their active movements in the heads and frequent flying from one to the other, carrying masses of pollen on their bodies and bristly legs. Sometimes these insects are literally powdered with the pollen which adheres to their bodies.

SUBFAMILY PYRRHOCORINA.

DYSDERCUS, Amyot et Serv.

1. *D. mimus*.

Capsus mimus, Say, Heteropt. New Harmony, 20, No. 3; Complete Writings, 338.
Dysdercus mimus, Stål, Enumeratio Hemipt. i, 121, No. 14.

Inhabits Texas, Mexico, California, Cuba, Hayti, and Central America. This species varies in color, but most strikingly so in the width and proportions of the head, pronotum, and abdomen, including the hemelytra.

The two varieties cited by Mr. Say belong really to this, and do not constitute a second species as indicated by Dr. Stål in the place referred to above.

In some varieties from Mexico, the head, pronotum, and corium are entirely black, and from this to the variety with only a point of black on the middle of the corium every variety occurs. In Hayti, they abound in gardens, and affect small growths in damp or low grounds. The males are in general narrower than the females.

2. *D. albidiventris*.

Dysdercus albidiventris, Stål, Öfv. Vetensk. Akad. Förh. 1854, 236; Stettiner Ent. Zeit. 23, 315 [exclusive of his reference to Say's *C. mimus*].
Dysdercus lunulatus, Uhler, Proc. Ent. Soc. Phila. i, 24.

Inhabits Mexico, Texas, California, Central America, and Panama.

This also varies in the same manner as the preceding species, and, although inhabiting some of the same localities in large numbers, it is of a larger size, and has the sides of the pronotum more deeply sinuated. One beautiful variety from California has the whole base of the pronotum back of the callosities, and the entire corium, blood-red.

3. *D. peruvianus*.

Lygæus peruvianus, Guer., Voyage de la Coquille, 178, pl. 12; fig. 16.
Dysdercus peruvianus, Stål, Enumeratio Hemipt. i, 121, No. 19.

Inhabits California, Peru, and the Sandwich Islands.

4. *D. obliquus*.

Pyrrhocoris obliquus, H.-Schf., Wanz. Ins. vii, 19, fig. 701.
Dysdercus bimaculatus, Stål, Öfv. Vetensk. Akad. Förh. 1854, 236.
Dysdercus obliquus, Stål, Enumeratio Hemipt. i, 121, No. 20.

Inhabits California, Mexico, Central America, Panama, &c.

A variety of this species lacks the two black dots of the corium.

SUBFAMILY LARGINA.

ACINOCORIS, Hahn.

A. lunatus.

Cimex lunatus, Fab., Mantissa Ins. ii, 302, No. 237.

Lygaeus calidus, Fab., Syst. Rhyng. 230.

Acinocoris calidus, Hahn, Wanz. Ins. ii, 114, fig. 194.

Largus interruptus, H.-Schf., Wanz. Ins. ix, 181, fig. 978.

Largus lunulatus, Burm., Handb. ii, 282, No. 1.

Largus (Acinocoris) lunatus, Stål, Enumeratio Hemipt. i, 92, No. 1.

Inhabits Brazil, Surinam, Mexico, and has been once found in California. It seems to be common in the valley of the Amazonas.

LARGUS, Hahn.

1. *L. cinctus.*

Largus cinctus, H.-Schf., Wanz. Ins. vii, 6, fig. 683; Stål, Enumeratio Hemipt. i, 94, No. 11.

Capsus succinctus, var. *a*, Say, Heteropt. 20.

Inhabits Mexico, California, Oregon, Nevada, and Arizona.

This differs only in a slight degree from the following species, and will no doubt hereafter prove to be only the extreme western form of it.

2. *L. succinctus.*

Cimex succinctus, Linn., Cent. Ins. Rarior. 17, No. 44.

Cimex rubrocinctus, De Geer, Mém. iii, 339, pl. 34, fig. 19.

Lygaeus succinctus, Fab., Ent. Syst. iv, 170.

Largus succinctus, H.-Schf., Wanz. Ins. vi, 78, fig. 648.

Inhabits Pennsylvania to Florida, and westward to Texas, Arizona and Southern Colorado.

The western specimens are blacker and not so brightly red-margined as those from the coasts of Georgia and Florida. In the sea islands of the latter State, a variety occurs which is of a dirty sand-red. This conforms with our experiences respecting other insects which belong to sandy regions adjacent to the sea; for example, *Ædipoda eucrata*, Harris, *Gryllus abbreviatus*, *Salda Signorete*, and many others, which are all paler and more nearly of the color of sand than their brethren who live farther inland upon the dark soils.

This genus is essentially American, and ranges between the northern warm-temperate zone and the southern warm-temperate zone. Each geographical province has one or more species. The insular and equatorial ones of the lowlands are marked with yellow spots, while the others are more uniform and plain in their pattern.

FAMILY PHYTOCORIDÆ.

MONALOCORIS, Dahlb.

M. filicis.

Cimex filicis, Linn., Syst. Nat. 718, No. 20.

Acanthia filicis, Wolff, Icon., Cim. 46, tab. 5, fig. 43.

Bryocoris filicis, Kolenati, Melet. Entom. ii, 129.

Monalocoris filicis, Fieb., Europ. Hemipt. 237; Douglas & Scott, British Hemipt. 279, pl. 10, fig. 2.

Inhabits Nebraska, Texas, Illinois, Maine, and Maryland; and Europe.

It is sometimes quite common in late summer and early autumn on several kinds of ferns.

MEGALOCERÆA, Fieb.

1. *M. debilis*.

Megaloceræa debilis, Uhler, in Hayden's Survey of Montana, 408, No. 1.

Inhabits Colorado, Montana, and Wyoming.

2. *M. rubicunda*.

Megaloceræa rubicunda, Uhler, *ib.* 408, No. 2.

Inhabits Colorado.

TRIGONOTYLUS, Fieb.

T. ruficornis.

Miris ruficornis, Fallen, Hemipt. Suec. i, 133, No. 8.

Miris ruficornis, Douglas & Scott, British Hempt. 290, 6.

Trigonotylus ruficornis, Fieb., Eur. Hemipt. 243.

Inhabits Idaho, Colorado, Illinois, Texas, Massachusetts, and Maryland; and Europe.

It inhabits the grass and weeds in brackish marshes in Maryland, and the salt-marshes near the coast in Massachusetts.

LEPTOPTERNA, Fieb.

L. amæna.

Leptopterna amæna, Uhler, in Hayden's Survey of Montana, 409.

Inhabits Idaho and Dakota.

BRACHYTROPIS, Fieb.

B. calcarata.

Miris calcaratus, Fallen, Hemipt. Suec., 131, No. 5.

Brachytropis calcarata, Fieb., Europ. Hemipt. 241.

Inhabits Texas, Indian Territory, Illinois, Massachusetts, Canada, New Jersey, Pennsylvania, and Maryland; and Europe. Common on rank weeds in low pastures and woods.

MIRIS, Auctor.

M. instabilis. New sp.

Form and general appearance of *M. virens*, Linn. Green, greenish-testaceous, or pale dull straw-yellow, clothed with close yellow pubescence. Head broadly conical, with a blackish vitta each side, which is usually continued backward over the pronotum and scutellum to the apex of the corium; apex of the head a little upturned, the vertex densely pubescent, minutely, confluent punctured, at the base bald, impunctate, and with a central impressed line. Antennæ robust, rufous, the basal joint a little longer than the head, sometimes greenish, beset with long stiff hairs. Eyes round, prominent, in contact posteriorly with the pronotum. Rostrum reaching behind the middle coxæ. Pronotum convex behind, finely, deeply, and in part confluent punctured, the lateral margins broadly sinuated, and the carinate edge sharply prominent; the anterior angles callous exteriorly, and destitute of the carinate edge. Humeral angles slightly recurved behind; median line pale. Propleura coarsely and confluent punctured, with a slender brown or red line each side continued interruptedly along the venter; meso- and meta-pleura punctate on the middle. Hemelytra almost white on the costal margin and inner edge; the surface pubescent, minutely

and closely punctate; the cuneus usually pale green, and the membrane hyaline, with rufous or pale-brown nervures, sometimes having a pale-brown streak protracted beyond the nervure. Scutellum more finely punctate than the pronotum, often having the punctures of the middle and base fuscous; the middle line pale and smooth. Tergum green or pale rufous, with the disk more or less infuscated. Venter green or testaceous, invested with close-set sericeous pubescence. Legs pale green, usually having the tarsi and tip of the tibiæ rufous; posterior femora usually having two series of piceous dots above and two similar series beneath; the nails and adjacent joint piceous.

Length, 6 to $7\frac{1}{2}$ millimeters. Breadth of pronotum, $1\frac{3}{4}$ to 2 millimeters.

Collected on the hills of Colorado in July (Lieutenant Carpenter). It is very common on low meadows in many parts of the Atlantic region.

Although this insect was referred to *Miris dorsalis*, Say, by Dr. Harris, it does not sufficiently agree with the description of that species to enable us to accept the determination. *M. dorsalis*, Say, still remains undetected by modern entomologists.

PHYTOCORIS, Fallen.

1. *P. nubilus*.

Capsus nubilus, Say, Heteropt. New Harmony, 22, No. 10.

Inhabits Texas; Mexico, near Matamoras, in the collection of Dr. Berlandier; Canada; New England; New York; Pennsylvania; New Jersey, in August; Maryland, on *Eupatorium*, in July and August; Georgia, and North Carolina.

2. *P. scrupeus*.

Capsus scrupeus, Say, Heteropt. New Harmony, 23, No. 13.

Capsus tetrastigma, H.-Schf., Wanz. Ins. ix, 166, fig. 959.

Capsus externus, H.-Schf., Wanz. Ins. viii, 16, fig. 791.

Inhabits Texas, Indian Territory, Mexico, Nebraska, Illinois, New England, Maryland, New Jersey, and Georgia.

This is a very variable insect, both in colors and in the width and thickness of the body and members. Pigmy specimens often occur in Eastern Massachusetts. I have found it in July on the grape-vines north of Baltimore.

The two figures of Herrich-Schaeffer represent varieties which are occasionally found in Maryland. Neither of them represents accurately the shape of the joints of the antennæ, although figure 791 is more nearly correct than the other.

LOPIDEA, Uhler.

L. media.

Capsus medius, Say, Heteropt. New Harmony, 22, No. 11.

Found on the foot-hills and plains of Colorado, September 19 and October 4, by Lieutenant Carpenter.

HADRONEMA, Uhler.

H. militaris.

Hadronema militaris, Uhler, Hayden's Survey of Montana, 412.

Collected July to September on the hills of Colorado.

LYGUS, Hahn.

1. *L. lineolaris*.

Capsus lineolaris, Palisot-Beauvois Ins. Afr. et Amér. 187, pl. xi, fig. 7.

Distributed over all the district traversed by the survey, as well upon the high mountains as on the hills and in the valleys.

It varies in the length and thickness of the antennæ and in the length of rostrum and hemelytra.

Specimens were collected above the timber-line in Colorado by Lieutenant Carpenter; and it occurs on the bald summits of the highest mountains in North Carolina.

2. *L. annexus*.

Lygus annexus, Uhler, in Hayden's Survey of Montana, 413.

Inhabits Colorado on the foot-hills (Lieutenant Carpenter).

CALOCORIS, Fieb.

1. *C. rapidus*.

Capsus rapidus, Say, Heteropt. New Harmony, 20, No. 4.

Capsus multicolor, H.-Schf., Wanz. Ins. viii, 19, fig. 795.

Inhabits Colorado, Arizona, Texas, and California.

2. *C. Palmeri*.

Calocoris Palmeri, Uhler, in Hayden's Survey of Montana, 410.

Inhabits Arizona and Southern Colorado.

RESTHENIA, Amyot & Serv.

1. *R. insignis*.

Capsus insignis, Say, Heteropt. New Harmony, 22, No. 12.

Inhabits Colorado and the Atlantic region.

2. *R. confraterna*.

Resthenia confraterna, Uhler, in Hayden's Survey of Montana, 411.

Inhabits Colorado, Wisconsin, Illinois, Maryland, &c.

DACOTA, Uhler.

D. hesperia.

Dacota hesperia, Uhler, in Hayden's Survey of Montana, 413.

Inhabits Colorado and Dakota.

PÆCILOSCYTUS, Fieb.

1. *P. venaticus*.

Pæciloscytus venaticus, Uhler, in Hayden's Survey of Montana, 414.

Inhabits Colorado, Illinois, New England, and Canada.

2. *P. diffusus*.

Pæciloscytus diffusus, Uhler, in Hayden's Survey of Montana, 415.

Inhabits Utah and Idaho.

RHOPALOTOMUS, Fieb.

1. *R. pacificus*.

Rhopalotomus pacificus, Uhler, in Hayden's Survey of Montana, 415.

Inhabits Montana, Idaho, and California.

2. *R. brachycerus*.

Rhopalotomus brachycerus, Uhler, in Hayden's Survey of Montana, 416.

Inhabits California and Colorado.

LABOPS, Burm.

L. hesperius.

Labops hesperius, Uhler, in Hayden's Survey of Montana, 416.

Inhabits Colorado, Montana, and British America.

It varies somewhat in the breadth of the head and in the amount of yellow marking of the head, &c. Collected by Lieutenant Carpenter, in July and September, on the mountains and foot-hills.

CAMPTOBROCHIS, Fieb.

C. nebulosus.

Camptobrochis nebulosus, Uhler, in Hayden's Survey of Montana, 417.

Inhabits Dakota, Colorado, Kansas, Missouri, Illinois, New England, and Maryland.

In the city of Baltimore, it is sometimes common in the crevices of the bark of linden trees; and in Massachusetts, it preys upon the females, and perhaps also upon the eggs, of the canker-moth.

TINICEPHALUS, Fieb.

T. simplex.

Tinicephalus simplex, Uhler, in Hayden's Survey of Montana, 417.

Inhabits Colorado, in July, on the foot-hills. Collected by Lieutenant Carpenter.

PLAGIOGNATHUS, Fieb.

P. obscurus.

Plagiognathus obscurus, Uhler, in Hayden's Survey of Montana, 418.

Inhabits Texas, Colorado, and the Atlantic States.

AGALLIASTES, Fieb.

A. associatus.

Agalliastes associatus, Uhler, in Hayden's Survey of Montana, 419.

Inhabits Colorado and Utah.

ORECTODERUS. New gen.

Elongate, narrow; hemelytra contracted before the middle. Head long, obliquely declining and curving anteriorly, ♂; shorter and with the front almost vertical, ♀; behind the eyes narrowed into a neck, ♂; protracted, but scarcely narrowed, ♀; face from the eyes to tip forming a long, acute triangle, ♂, but shorter in the ♀; the surface between the eyes very broad and somewhat flattened, ♂. Eyes prominent, long, oval, placed obliquely; inferior cheek lobes ridged and tapering to a slender point, bounded above by a long deep groove, which carries the linear, carinate, superior cheek-lobe; jugum forming a slender, tapering, prominent ridge, separated from the tylus by a long groove; the tylus long

and slender. Rostrum long and slender, reaching to the intermediate coxæ; the basal joint somewhat more than one-half as long as the under side of head; second joint much longer, reaching to the tip of anterior coxæ; third and fourth subequal, each a little shorter than the second. Antennæ long and slender, nearly as long as the hemelytra; the basal joint about as long as the width of head between the eyes, ♂; or somewhat longer, ♀; second joint as long as the inner margin of the clavus, gradually thickening from beyond the middle to the tip; third much more slender, longer than the basal joint; the fourth shortest. Pronotum very long trapeziform, ♂; or long subcampanulate, ♀; in the latter separated into two divisions by a transverse constriction behind the middle, leaving the posterior lobe high and suborbicular. Scutellum almost equilateral, humped at base, the apex very acute. Hemelytra widest behind the middle, the cuneus long and narrow. Abdomen much contracted at base. Legs long and slender.

All the specimens thus far observed, of both sexes, have had fully-developed hemelytra and wings.

O. obliquus. New sp.

Long and slender, resembling *Systellonotus*, black or blue-black, polished. Face and cranium transversely obsoletely rugulose, indented on the vertex, and longitudinally impressed next the inner line of the eyes. Antennæ yellow or pale piceous, the apical half blackish-piceous; the third joint, excepting the base, and the fourth fuscous; eyes brown; rostrum piceous, paler on the middle, sometimes yellow, with a piceous tip. Pronotum minutely rugulose, densely so in the ♀, in which latter the surface is often dull opaque-black. Legs orange or pale piceous, the posterior pair usually darker; the coxæ pale or white, but darker or black on the anterior and intermediate ones in the ♀, while the posterior are conspicuously white; tarsi piceous at tip. Scutellum pale yellow or white on the apical division, ♀; or black, ♂. Hemelytra black, obsoletely punctured, remotely pubescent; the base of the corium having white streak running along parallel with the margin of the clavus; base of cuneus with a large white spot, ♂. The female lacks the white streak of the corium. Membrane piceous or smoke-black; wings a little infuscated. Venter black, polished, sometimes with a central row of rufo-piceous dots. Genital process of the male projecting laterally, long and wide, falcate.

Length, 6 to 7½ millimeters. Width across pronotum, 1 to 1½ millimeters.

A variety of the male lacks the white marks of the hemelytra, and at the same time has deep-orange legs. Immature specimens are chestnut-brown, with the white markings less distinct.

One male was obtained on the hills of Colorado, June to September, by Lieutenant Carpenter.

I have examined both sexes, from Massachusetts, Connecticut, Pennsylvania, Lower Canada, Illinois, Kansas, and Washington Territory.

FAMILY ANTHOCORIDÆ.

TRIPHLEPS, Fieb.

T. insidiosus.

Reduvius insidiosus, Say, Heteropt. New Harmony, 32, No. 5.

Anthocoris pseudochinche, Fitch, Second Report on Nox. Ins. of New York, 295.

Inhabits Texas, Nebraska, Kansas, Illinois, Missouri, the Atlantic region, and Cuba.

ANTHOCORIS, Fallen.

A. musculus.

Reduvius musculus, Say, Heteropt. New Harmony, 32, No. 6.

Collected above timber-line, in the mountains of Colorado, by Lieutenant Carpenter.

FAMILY ARADIDÆ.

ARADUS, Fab.

1. *A. acutus.*

Aradus acutus, Say, Heteropt. New Harmony, 28, No. 2.

Aradus americanus, H.-Schf., Wanz. Ins. viii, 115, fig. 889.

Found above timber-line, in the mountains of Colorado, by Lieutenant Carpenter. Common also in Florida, Indiana, &c.

This species is found under very contrasting climatal conditions. In the subalpine regions of the western Territories, it is liable to be suddenly caught by the frosts and severely cold winds of those exposed situations; while on the sea-coast of Florida, it exists in a climate loaded with moisture, of subtropical warmth and of perpetual mildness. In Southern Indiana, it is subject to the blasts of torrid heat, which rush over the plains from the farther South. But, in all these different conditions it retains a very steady uniformity of appearance, and does not exhibit much variation in the details of structure.

2. *A. tuberculifer.*

Aradus tuberculifer, Kirby, Fauna Bor.-Amer. iv, 278, pl. 6, fig. 5.

Inhabits Colorado, British America, California, &c.

Specimens were collected above timber-line in the first-named State. Mr. Kirby's came from the Hudson's Bay Territory.

The late Robert Kennicott obtained specimens in the vicinity of the Yukon River in Walrussia, and near the Great Bear Lake and Mackenzie River in British America.

3. *A. rectus.*

Aradus rectus, Say, Heteropt. New Harmony, 29, No. 4.

Inhabits Colorado, New Mexico, British America, New England, Georgia, North Carolina, and Florida.

4. *A. æqualis.*

Aradus æqualis, Say, Heteropt. 29, No. 6.

Inhabits Texas, Indian Territory, New Jersey, Illinois, &c.

5. *A. cinnamomeus.*

Aradus cinnamomeus, Panzer, Fauna German. 100, No. 20; Fieb. Europ. Hemipt. 111; H.-Schf., Wanz. Ins. v, 91, fig. 539.

Inhabits Texas, Missouri, and Southern Europe.

6. *A. ampliatus.* New sp.

Broad and thin; grayish-black; form similar to *A. crenatus*, Say. Head densely granulated; to the tip of the protuberance longer than the width across the eyes, the protuberance slightly tapering toward the tip; processes of the antenniferous tubercles slender, very acute, and not quite

as long as the basal joint of antennæ; antennæ black, stout, subcylindrical, the joints all of nearly equal thickness; first joint very short, the second very long, almost equal to the third and fourth united, the third orange on the apical half and longer than the fourth; surface in front of each eye raised into a blunt tooth; rostrum rust-brown, fuscous at tip. Pronotum transverse-subreniform, the anterior margin widest, arcuated, and broadly recurved each side, the margin irregularly and minutely toothed, the anterior angles a little acutely prominent; lateral obliquely narrowing posteriorly; posterior angles forming broad, rounded lobes, the posterior margin deeply sinuated; surface deeply depressed each side, irregularly and coarsely granulated, the disk with two longitudinal, approximate, raised lines, each side of which is a subinterrupted, less distinct, raised line. Scutellum coarsely and irregularly granulated, tumidly elevated on the disk, sunken behind the disk, and with the lateral margins very prominently elevated. Legs black; the coxæ, base of femora and a ring before their tip, the tip of tibiæ, and the tarsi ochreous yellow. Hemelytra deep black, more finely granulated, extending almost to the tip of the abdomen; base of corium exteriorly expanded into a wide, oval flap, which is broadly recurved, and the edge minutely serrated. Venter a little ferruginous; the central carina paler; the outer angles of the segments and a small part of the edges of the incisures of the connexivum both above and below ochreous-yellow.

Length, 11 millimeters. Width of pronotum, 4 millimeters.

Inhabits California (James Behrens).

7. *A. debilis*. New sp.

Long, narrowing posteriorly, pale rust-brown; form similar to *A. acutus*, Say. Head long, longer than the width across the eyes, minutely and densely granulated; the protuberance entire, cylindrical, thick; cranium with a few coarse granules on the central ridge; processes of the antennal base short, acute; surface adjoining the eyes infuscated; before the eyes is a blunt, vertical process; antennæ very slender, the joints cylindrical, densely and evenly granulated, the second joint longer than the head, third and fourth joints a little stouter, the third whitish except at base, the fourth fuscous, a little shorter than the third, conical at tip; rostrum chestnut-brown, minutely, evenly granulated, reaching to the incisure between the meso- and meta-sternum. Pronotum wide sublunate, almost twice as wide as its length; the antero-lateral arcuated margin irregularly and remotely denticulated, broadly recurved, infuscated; posterior margin widely sinuated; behind the humeri produced into rounded flaps; disk infuscated, crossed by four longitudinal, anteriorly approximating, subentire, carinate lines; callosities very prominent, and bounded by sharply-defined lines. Scutellum infuscated, the basal angles tumidly elevated, the sides bounded from the base to beyond the middle by prominent, thick, carinate edges, the disk triangularly tumid, and sending backward a carinate longitudinal line. Legs irregularly granulated, faintly marbled with fuscous; the tips of tibiæ and a faint band on their middle yellow. Hemelytra clouded and marbled with fuscous; the base of the corium somewhat expanded into rounded, upturned lobes; membrane slightly net-veined, marbled, and clouded with fuscous. Venter almost uniform pale ferruginous; tergum a little darker; the connexivum faintly clouded with fuscous, and with a fuscous spot at the base of the segments adjoining the incisures. ♀

Length, 11 millimeters. Width of pronotum, $3\frac{1}{4}$ millimeters.

Inhabits Vancouver's Island.

A single female was kindly given to me by Mr. W. V. Andrews.

8. *A. inornatus*. New sp.

Dull fuscous; outline similar to *A. acutus*, Say. Differs from that species in being destitute of ochreous spots; the head and antennæ agree with it, except in the absence of the two rounded prominences of the cranium, which are in this replaced by linear protuberances; the postero-lateral margins of the pronotum narrowed obliquely posteriorly; the antero-lateral margins are arcuated, and armed with three or four large teeth, and with numerous irregular minute teeth. Rostrum barely reaching beyond the incisure between the pro- and meso-sternum.

Length, 9 to 10 millimeters. Width of pronotum, $2\frac{3}{4}$ to $3\frac{1}{2}$ millimeters.

Inhabits Nebraska, British Columbia, Wisconsin, Illinois, Pennsylvania; and in Maryland quite rare.

In one female, the incisures of the connexivum were a little cinereous, and the disks of the segments showed a faint cinereous spot.

9. *A. fuscomaculatus*.

Aradus fuscomaculatus, Stål, Eugenies Resa, 260, No. 210.

Inhabits California, near San Francisco.

This species seems to be similar to *A. ornatus*, Say. Only a few fragments of what I believe to belong to it have thus far been available to me for examination, and I desire to call particular attention to it, that it may not continue to be overlooked by western entomologists.

At least five other species of the genus *Aradus*, from California, have been examined by me; but all the specimens were too imperfect for accurate description.

BRACHYRHYNCHUS, Lap.

1. *B. granulatus*.

Aradus granulatus, Say, Heteropt. New Harmony, 30, No. 7; Complete Writings, i, p. 353.

Dysodius parvulus, H.-Schf., Wanz. Ins. ix, 139, fig. 956.

Inhabits Texas, Cuba, Florida, Maryland, and Missouri.

2. *B. lobatus*.

Aradus lobatus, Say, Heteropt. New Harmony, 30, No. 8; Complete Writings, i, 354.

Inhabits Texas, Illinois, Michigan, Canada, Pennsylvania, and one specimen from Maryland.

3. *B. moestus*.

Mezira moesta, Stål, Hemipt. Mex. Stettin. Ent. Zeit. xxiii, 438.

Inhabits California, Arizona, and Mexico.

Perhaps this will prove to be the same as *B. americanus*, Spinola, from Chili. The differences between them are only such as occur in varieties of other species.

4. *B. simplex*. New sp.

Dark brunneous; minutely and densely granulated. Head a little widened at tip; the lateral lobes a little longer than the tylus; the lateral edges a little serrate-granulate, and longitudinally grooved; the tylus cylindrically raised above the plane of the cheeks, tinged with rufous; processes of the antennal base short, acute at tip, divaricating; antennæ short, robust, the third joint a very little longer than the sec-

ond, the rest subequal in length; under side of head coarsely granulated; rostrum ochreous-yellow. Pronotum trapezoidal; the lateral margins oblique, not distinctly emarginated; the anterior angles rounded, scarcely prominent; the posterior margin very feebly sinuated; the surface remotely and irregularly granulated. Pleural pieces and prosternum coarsely granulated; meso- and meta-sternum minutely rastrated and granulated. Femora roughly granulated, incrassated in the middle; tibiæ minutely granulated, coxæ, trochanters, base of femora, apex of tibiæ, and tarsi ocher-yellow. Base of membrane with a whitish cunous-mark, behind which is a brown spot. Venter granulated on the connexivum, minutely rastrated, and obsoletely granulated on the disk; superior edge of the connexivum tinged with rufous; genital segment of the male bluntly rounded. ♂ ♀.

Length $4\frac{1}{2}$ to $6\frac{1}{2}$ millimeters. Width of pronotum $1\frac{3}{4}$ to $2\frac{1}{4}$ millimeters.

Inhabits Texas, Indian Territory, Cuba, Missouri, Florida, New England, Pennsylvania, Illinois; and Maryland, beneath the bark of oak-trees, in February and March.

It differs from *B. granulatus*, Say, in not having the genital segment of the male long and obliquely rounded, but short and blunt, and in the third antennal joint being scarcely longer than the second, &c.

FAMILY PHYMATIDÆ.

PHYMATA, Lat.

P. erosa.

Cimex erosus, Linn., Syst. Nat. ed. 12, ii, 718, No. 19.

Cimex scorpio, De Geer, Mémoires, iii, 350, pl. 35, fig. 13.

Syrts erosa, Fab., Syst. Rhyng. 121, No. 2.

Acanthia erosa, Wolff, Icon. Cim. 89, pl. 9, fig. 83.

Phymata erosa, Amyot et Serv., Hemipt. 290, No. 2.

Inhabits the greater part of North America, including the West Indies, Mexico, and Nicaragua. It seems to be not less common on the Pacific coast than in the Atlantic region.

In Maryland, it is very useful in destroying caterpillars and other vegetable-feeding insects; but is not very discriminating in its tastes, and would as soon seize the useful honey-bee as the pernicious saw-fly. It lurks about in the thick foliage of the gardens, and, concealed in the axil of a leaf or stem, it grasps suddenly with its fore claws the insect which may get near it, and then, thrusting the stout beak into the body of its victim, proceeds leisurely to withdraw its life-juices.

MACROCEPHALUS, Swed.

1. *M. prehensilis.*

Syrts prehensilis, Fab., Syst. Rhyng. 123, No. 8.

Macrocephalus prehensilis, Amyot et Serv., Hemipt. 293, No. 2.

Inhabits Texas, Indian Territory, Mexico, and the Southern States generally. Its most northern limit at present known is the State of Tennessee.

2. *M. cimicoides.*

Macrocephalus cimicoides, Swederus, Nova Acta Holm. 1787, 3, tab. 8, fig. 1.

Syrts manicatus, Fab., Syst. Rhyng. 123, No. 7; Burm., Handb. ii, 252; Wolff, Icon. Cim. 167, fig. 163; H.-Schf., Wanz. Ins. viii, 107, fig. 878.

Inhabits Texas and the Southern States; but will no doubt be found in Arizona, New Mexico, &c.

FAMILY NABIDÆ.

PAGASA, Stål.

P. pallipes.

Pagasa pallipes, Stål, Enumeratio Hemipt. iii, 108, No. 3.

Inhabits Texas, Kansas, &c.

As this species has been commonly found in company with *Coriscus subcoleoptratus*, we may expect to find it in Colorado and Dakota.

METATROPIPHORUS, Reuter.

M. Belfragei.

Metatropiphorus Belfragei, Reuter, Öfvers. Vetens. Akad. Forhandl. 1872, 94, No. 1; Stål, Enumeratio Hemipt. iii, 111.

Inhabits Texas and the Southern States.

CORISCUS, Schrank (1801).

(*Nabis*, Lat. 1807).

1. *C. subcoleoptratus*.

Nabicula subcoleoptrata, Kirby, Fauna Bor.-Amer. iv, 282.

Nabis subcoleoptratus, Reuter, Öfvers. Vetens. Akad. Forhandl. 1872, 81, No. 1.

Coriscus subcoleoptratus, Stål, Enumeratio Hemipt. iii, 112, No. 1.

Nabis canadensis, Provancher, Canad. Nat. 1869.

Inhabits Colorado, Dakota, Kansas, Nebraska, Canada, New England, Texas, &c.

2. *C. crassipes*.

Nabis crassipes, Reuter, l. c. 29, 6, p. 83, No. 5.

Inhabits Mexico, Texas, &c.

3. *C. sericans*.

Nabis sericans, Reuter, l. c. 29, 6, p. 83, No. 6.

Inhabits Texas.

4. *C. inscriptus*.

Reduviolus inscriptus, Kirby, Fauna Bor.-Amer. iv, 280, 1, pl. 6, fig. 7.

Inhabits British America, Maine, and Dakota.

5. *C. ferus*.

Cimex ferus, Linn., Fauna Suecicæ, 256, No. 962.

Nabis ferus, Fieb., Europ. Hemipt. 161, No. 9.

Inhabits California, Nebraska, Colorado, New England, the Atlantic region generally, including Maryland and Western North Carolina. In Europe, it occurs throughout most of the northern and central countries, and is not unknown in France, Italy, &c.

6. *C. Kalmii*.

Nabis Kalmii, Reuter, l. c. 29, 6, p. 91, No. 24.

Inhabits Wisconsin, Nebraska, &c.

7. *C. punctipes*.

Nabis punctipes, Renter, l. c. 29, 6, p. 89, No. 20.

Inhabits Wisconsin, Nebraska, New Jersey, &c.

8. *C. nigriventris*.

Nabis nigriventris, Stål, Settin. Ent. Zeit. xiii, 458.

Inhabits Mexico and Texas.

SUPERFAMILY REDUVIOIDEA.

Rostrum free, curved, thick, and short. Antennæ many-jointed, 4-13, long and geniculate. Fore tibiæ expanded at tip. Hemelytra thin, with very large and long areoles; the membrane very large, and continued on the inner side of the corium.

SUBFAMILY REDUVIINA.

SINEA, Amyot et Serv.

1. *S. diadema*.

Reduvius diadema, Fab., Genera Ins. 302; Ent. Syst. iv, 206, No. 46.

Cimex multispinosus, De Geer, Mém. iii, 348, No. 23, pl. 35, fig. 11.

Cimex hispidus, Thunb., Nov. Ins. Spec. ii, 33.

Cimex setosus, Gmelin, Syst. Nat. i, pt. 4, 2144, No. 250.

Cimex diadema, Gmelin, Syst. Nat. i, pt. 4, 2196, No. 550.

Zelus diadema, Fab., Syst. Rhyng. 286, No. 18.

Reduvius raptatorius, Say, Amer. Ent. ii, pl. 31; Complete Writings, i, 72, pl. 31; Journ. Acad. Phila. iv, 327, No. 1.

Sinea multispinosa, Amyot et Serv., Hemipt. 375, No. 1.

Ivantha hispida, Stål, Öfv. Vetensk. Akad. Forhandl. 1866, 264, No. 3.

Inhabits Texas, Nebraska, Colorado, Mexico, Indian Territory, and from Canada to Florida in the Atlantic region.

2. *S. coronata*.

Sinea coronata, Stål, Stettin. Ent. Zeit. xxiii, 444, No. 233.

Inhabits Mexico and California.

3. *S. raptoria*.

Sinea raptoria, Stål, l. c. xxiii, 444, No. 235.

Inhabits Texas, Mexico, and California.

ACHOLLA, Stål.

1. *A. multispinosa*.

Cimex multispinosus, De Geer, Mém. iii, 348, p. 23, pl. 35, fig. 10.

Reduvius sexspinosus, Wolff, Icones Cimicum, iii, 124, No. 118, fig. 118.

Harpactor subarmatus, H.-Schf., Wanz. Ins. viii, 83, fig. 852.

Acholla sexspinosa, Stål, Settin. Ent. Zeit. xxiii, 445 (note).

Inhabits Nebraska, Wisconsin, Illinois, New England, New York, &c.

2. *A. tabida*.

Asera tabida, Stål, Settin. Ent. Zeit. xxiii, 446, No. 237.

Acholla tabida, Stål, Enumeratio Hemipt. ii, 72, No. 3.

Inhabits Mexico and California.

PRIONOTUS, Lap.

P. cristatus.

Cimex cristatus, Linn., Cent. Ins. Rar. 16, No. 42; Amœn. Acad. vi, 399, No. 42; Syst. Nat. ed. 12 (1767), i, pt. 2, 723, No. 62.
Reduvius novenarius, Say, Amer. Ent. i, pl. 31, No. 2; Complete Writings, i, 71, pl. 31; Heteropt. New Harmony, 33, (reference under *Nabis*).
Arilus denticulatus, Westw., in Drury's Illustr. new ed. ii 73.

Inhabits Southern States, Texas, Indian Territory, and Atlantic region south of New York.

One specimen from Mexico, not differing essentially from the common type. In Maryland, it dwells upon the small pine-trees, and makes havoc with the caterpillars and other insects which come within its reach.

ATRACHELUS, Amyot et Serv.

A. cinereus.

Reduvius cinereus, Fab., Ent. Syst. suppl. 545, 48-49.
Zelus cinereus, Fab., Syst. Rhyng. 287, No. 24.
Atrachelus heterogeneus, Amyot et Serv., Hémipt. 374, 1, pl. 7, fig. 4.

Inhabits the Southern States, Texas, and Mexico.

FITCHIA, Stål.

1. *F. nigro-vittata.*

Fitchia aptera, Stål, Öfvers. Vetensk. Akad. Forhandl. 1859, 371, No. 1.
Fitchia nigro-vittata, Stål, Öfvers. Vetensk. Akad. Forhandl. 1866, 296, No. 1.

Inhabits Texas, Kansas, Indian Territory, and Colorado.

2. *F. spinosula.*

Fitchia spinosula, Stål, Enumeratio Hemipt. ii, 79, No. 2.

Inhabits Texas, Colorado, &c.

REPIPTA, Stål.

R. taurus.

Zelus taurus, Fab., Syst. Rhyng. 291, No. 39.
Zelus lineatus, Amyot et Serv., Hémipt. 373, No. 2.
Repipta taurus, Stål, Stettin. Ent. Zeit. xxiii, 446, No. 291.

Inhabits Texas, Mexico, Florida, &c.

ZELUS, Fab.

1. *Z. bilobus.*

Zelus bilobus, Say, New Sp. Ins. of Louisiana, 12; Complete Writings, i, 306.

Inhabits Louisiana, Texas, and Mexico.

2. *Z. cervicalis.*

Zelus cervicalis, Stål, Enumeratio Hemipt. ii, 90, No. 15.

Inhabits Texas, California, Mexico, and Florida.

DIPLODUS, Stål.

1. *D. luridus.*

Diplodus luridus, Stål, Stettin. Ent. Zeit. xxiii, 452 (foot-note).

Inhabits the Atlantic region, and extends westward into Texas and Colorado.

2. *D. Renardii*.

Zelus Renardii, Kolenati, Meletemata Entom. 1857, vi, 42, tab. 3, fig. 2.
Diplopus Renardii, Stål, Enumeratio Hemipt. ii, 91, No. 36.

Inhabits California.

PINDUS, Stål.

P. socius.

Pindus socius, Uhler, in Hayden's Survey of Montana, 420.

Inhabits near Snake River, Idaho, and Dakota, Kansas, and Arizona.

MILYAS, Stål.

1. *M. cinctus*.

Reduvius cinctus, Fab., Gen. Ins., 302, Nos. 5-6; Ent. Syst. iv, 199, Nos. 20.
Cimex præcinctus, Gmelin, Syst. Nat. i, pt. 4, 2198, No. 565.
Harpactor cinctus, H.-Schf., Wanz. Ins. viii, 83, fig. 853.
Milyas cinctus, Stål, Hemipt. Fabriciana, i, 106, No. 1.

Inhabits the Atlantic region from Massachusetts to Georgia, and westward into Texas and the Indian Territory. One specimen from Cheyenne.

2. *M. zebra*.

Milyas zebra, Stål, Stettin. Ent. Zeit. xxiii, 448, No. 299.

Inhabits California, Lower California, and Mexico. Closely related to the preceding species, but differing from it in being darker-colored, more hairy, and with four whitish rings on the first joint of the antennæ.

SUBFAMILY APIOMERINA.

APIOMERUS, Hahn.

1. *A. spissipes*.

Reduvius spissipes, Say, Journ. Acad. Phila. iv, 199, No. 20; Amer. Ent. ii, pl. 31, fig. 3.
Apiomerus spissipes, Stål, Enumeratio Hemipt. ii, 98, No. 15.

Inhabits Texas, Colorado, Mexico, and Arizona.

2. *A. crassipes*.

Reduvius crassipes, Fab., Syst. Rhyng. 273, No. 35; Say, Amer. Ent. ii, pl. 31, fig. 4.
Reduvius linitaris, Say, Heteropt. New Harmony, 31, No. 1.
Herega rubrolimbata, Amyot et Serv., Hémipt. 354, No. 1.
Apiomerus crassipes, Stål, Hemipt. Fabr. i, 117, No. 3.

Inhabits Texas, Kansas, Nebraska, the Atlantic region, and Canada.

3. *A. flaviventris*.

Apiomerus flaviventris, H.-Schf., Wanz. Ins. viii, 77, fig. 847.
Apiomerus flaviventris, Stål, Enumeratio Hemipt. ii, 98, No. 16.

Inhabits Arizona, California, New Mexico, Texas.

4. *A. ventralis*.

Reduvius ventralis, Say, Heteropt. New Harmony, 31, No. 2.

Inhabits Missouri, Nebraska, region of the Saskatchewan River. Collected by Robert Kennicott.

5. *A. repletus*. New sp.

Form of *A. hirtipes*, Hahn. Black, robust, densely invested with brownish-black, erect pubescence. Head and surface of the pronotum polished; eyes brown; antennæ brownish-piceous, excepting the basal joint, which is deep black. Lateral margins and humeral angles of the pronotum densely beset with stiff bristles; the anterior lobe longitudinally, deeply, and widely scooped out, each side with high oblique ridges, defined by deep furrows. Hemelytra velvety; the dense pile short, black. On the disk of each corium is a crimson-red, large, triangular spot. Abdomen with dense, erect, moderately short pile; the connexivum, both above and below, almost bald, polished, only the base pubescent, the incisures pale yellow; anal lobes large, lamellate, circular, pale yellow, the margin thickened.

Length, 21 millimeters. Width of pronotum, 7 millimeters.

Inhabits California.

SUBFAMILY HAMMATOCERINA.

HAMMATOCERUS, Burm.

1. *H. purcis*.

Cimex purcis, Drury, Illustr. iii, 63, tab. 45, fig. 4.

Hammatocerus nyctimerus, Burm., Handb. ii, pt. 1, 236, No. 1.

Hammatocerus furcis, Blanch., Hist. des Ins. iii, 105, No. 1; Amyot et Serv., Hémipt., 346, No. 1.

Inhabits Virginia and the region south and southwest, through Texas, into Mexico, and Indian Territory. This species varies much in the extent of the red color of the femora; and no doubt the *H. luctuosus*, Stål, of Mexico, will yet prove to be only a variety of it. Dr. Edward Palmer collected one specimen in the vicinity of the old Fort Cobb.

SUBFAMILY ECTRICHODIINA.

ECTRICHODIA, St. Farg. & Serv.

1. *E. cruciata*.

Petalochirus cruciatus, Say, Heteropt. New Harmony, 33, No. 1; Complete Writings, i, 358, 1.

Ectrichodia cruciata, Stål, Enumeratio Hemipt. ii, 103, No. 4.

Ectrychotes bicolor, H.-Schf., Wanz. Ins. viii, 53, fig. 822.

Rhiginia crudelis, Stål, Stettin. Ent. Zeit. xxiii, 455, No. 319.

Inhabits Pennsylvania, Maryland, and the region south and west into Texas, Mexico, and New Mexico.

2. *E. cinctiventris*.

Ectrichodia cinctiventris, Stål, Enumeratio Hemipt. ii, 103, No. 5.

Inhabits Texas, New Mexico, and Mexico.

It is the largest species thus far detected in the United States; but it varies extraordinarily in size and somewhat also in color.

Dr. Linneecum met with it in Washington County, Texas, and I have received it from several other parts of this State.

SUBFAMILY PIRATINA.

SIRTHENEA, Spin.

S. carinata.

Relarius carinatus, Fab., Ent. Syst. suppl. 545, Nos. 36-37; Coquebert, Illustr. i, 42, pl. 10, fig. 15.

Pirates carinatus, Serv., Ann. Sci. Nat. xxiii, 221, No. 10.

Rasahus carinatus, Amyot et Serv., Hist. Hémipt. 326, No. 1.

Sirthenea carinata, Stål, Hem. Fabr. i, 120, No. 2.

Inhabits California, Mexico, Texas, and the Southern States.

RASAHUS, Amyot & Serv.

1. *R. biguttatus*.

Petalochirus biguttatus, Say, Ins. of Louisiana, 13; Heteropt. New Harmony, 33, No. 2.

Pirates mutillarius, Guér., in Sagra's Hist. de Cuba, 410 (excluding the synonymy).

Inhabits Arizona, California, Mexico, Louisiana, Texas, Panama, Para, Cuba, and West Virginia.

This insect affords an excellent example of the changes which a species undergoes in being adjusted to the conditions which prevail in each comparatively small region of its habitat. There are small differences in the specimens from each locality, which enable us to link together the forms from these widely remote places. In general, the form from Cuba contrasts strongly with that from California both in color and structure.

At Para, it acquires more distinctly the blackish obscuration of the apical part of the femora; but there is a tendency to this observable in some of the specimens from near San Francisco. This same blackening of the femora is also seen in specimens of *Sirthenea carinata* from the basin of the Amazonas.

An intimate acquaintance with these and similar insects will, no doubt, add much to our knowledge of the origin and structure of the regions which they affect, and may give a clew to the place of their origin, and determine the reasons of their present distribution. A pressing need of the present time is a systematic and accurate survey of our still wild territories, including the proper preservation of large series of specimens from every kind of locality. This would clear away many of the difficulties which now obstruct the study of the present life-areas of the great West, and settle upon a secure basis our knowledge of the dependence of organisms upon the structure of the country they inhabit, and the extent and nature of their reactions upon the productions of that country.

MELANOLESTES, Stål.

1. *M. picipes*.

Pirates picipes, H.-Schf., Wanz. Ins. viii, 62, fig. 831.

Melanolestes picipes, Stål, Enumeratio Hemipt. ii, 107, No. 3

Reduvius pungens, LeConte, Proc. Acad. Phila. 1855, 404.

Inhabits California, Texas, Indian Territory, and the Atlantic region from Maine to Florida and Louisiana, and Para, Brazil.

2. *M. abdominalis*.

Pirates abdominalis, H.-Schf., Wanz. Ins. viii, 63, fig. 832.

Inhabits California, Mexico, and the Atlantic region; also, from old Fort Cobb, Indian Territory, by Dr. E. Palmer.

The evidence at present in my possession does not warrant the uniting of these two species. Both are quite common in Maryland, sometimes occurring under the same stone; but while I have seen the sexes united, I have never seen a male of the one caress or unite with a female of the other. The width and proportions of the head and pronotum and abdomen vary considerably in the specimens of both of these species, so that, in the absence of a long series of them, they might be made to constitute a number of species.

SUBFAMILY ACANTHASPIDINA.

MECCUS, Stål.

M. phyllosomus.

Conorhinus phyllosomus, Burm., Handb. ii, 1, 246, No. 3.

Meccus phyllosoma, Stål, Berlin. Ent. Zeit. iii, 105.

Inhabits California and Mexico.

A single specimen from near San Diego is deep black, highly polished on the surface of pronotum, and the only red present is upon the outer edge of the abdomen.

CONORHINUS, Lap.

1. *C. rubrofasciatus*.

Cimex rubrofasciatus, De Geer, Mém. iii, 349, pl. 35, fig. 12.

Redurius gigas, Fab., Syst. Ent. 729, No. 1.

Cimex erythrozonias, Gmelin, Syst. Nat. i, pt. 4, 2181, No. 456.

Cimex gigas, Gmelin, *ib.* 2195, No. 544.

Conorhinus gigas, Burm., Handb. ii, pt. 1, 246, No. 1; Blanchard, Hist. des Insectes, iii, 108, No. 2.

Conorhinus rubrofasciatus, Amyot et Serv., Hémipt. 384, No. 1, pl. 8, fig. 2.

Conorhinus gigas, H.-Schf., Wanz. Ins. viii, 72, figs. 841, 842.

*Conorhinus Stål*i, Signoret, Ann. Soc. Ent. France, 3d ser., viii, 967, No. 184.

Conorhinus rubrofasciatus, Stål, Berlin. Ent. Zeit. iii, 106, No. 1.

Inhabits California, Texas, Kansas, Mexico, Brazil, Asia, and Africa.

The specimens from California and Mexico have the anterior angles of the pronotum less produced than in the African and South American. Occasionally a specimen obtained in California is almost uniformly deep or rusty black. Whether this is a feature of all the specimens from a particular locality, or only a peculiarity of sporadic examples, has not yet been determined.

2. *C. variegatus*.

Cimex variegatus, Drury, Illust. i, 109, pl. 45, fig. 5.

Cimex claviger, Gmelin, Syst. Nat. i, pt. 4, 2179, No. 441.

Conorhinus lecticularius, Stål, Berlin. Ent. Zeit. iii, 107, No. 2; Hemipt. Fabr. i, 124, No. 3.

Inhabits Texas, Indian Territory (Dr. Palmer), California, Georgia, Louisiana, and Illinois.

3. *C. sanguisugus*.

Conorhinus sanguisuga, LeConte, Proc. Acad. Phila. vii, 404.

Conorhinus lateralis, Stål, Berlin. Ent. Zeit. iii, 107, No. 3.

Inhabits Virginia, Maryland, Ohio, Texas, Florida, Illinois, and Panama.

The extended geographical range of this blood-thirsty tenant of the beds in houses is noteworthy, and no doubt it has, like its congener, *C. gigas*, been aided in its range by human agency.

4. *C. Gerstaeckeri*.

Conorhinus Gerstaeckeri, Stål, Berlin. Ent. Zeit. iii, 111, No. 9; Hemipt. Fabr., i, 124, No. 8.

Inhabits Texas.

FAMILY STENOPODIDÆ.

CENTROMELUS, Fieb.

C. languidus.

Psirontis languida, Stål, Öfvers. Vetensk. Akad. Forhandl. 1859, 382, No. 2.

Centromelus languida, Stål, Enumeratio Hemipt. ii, 120, No. 1.

Inhabits Texas, Florida, South Carolina, and Brazil.

PYGOLAMPIS, Germ.

1. *P. pectoralis*.

Reduvius pectoralis, Say, Ins. of Louisiana, 11; Complete Writings, i, 306.

Pygolampis fuscipennis, Stål, Öfvers. Akad. 1859, 379, No. 4.

Pygolampis pectoralis, Uhler, Proc. Boston Soc. Nat. Hist. 1871, 15.

Inhabits Texas, California, Louisiana, Maryland, Florida, Massachusetts, Cuba, and New York.

2. *P. sericea*.

Pygolampis sericea, Stål, Öfvers. Vetensk. Akad. Forhandl. 1859, 380, No. 5.

Inhabits Texas, Maryland, Pennsylvania, and South Carolina.

GNATHOBLEDA, Stål.

G. tumidula.

Gnathobleda tumidula, Stål, Enumeratio Hemipt. ii, 121, No. 3.

Inhabits Texas, Cuba, &c.

STENOPODA, Lap.

S. culiciformis.

Cimex culiciformis, Fab., Syst. Ent. 728, No. 162; Species Ins. ii, 376, No. 231.

Gerris culiciformis, Fab., Ent. Syst. iv, 189, No. 7.

Stenopoda cinerea, Lap., Ess. 26, pl. 52, fig. 2.

Stenopoda culiciformis, Stål, Hemipt. Fabr., i, 129, No. 1.

Inhabits Texas, Florida, Georgia, Alabama, Cuba, Mexico, Indian Territory, Panama, and Arkansas.

SPILALONIUS, Stål.

S. geniculatus.

Spilalonius geniculatus, Stål, Enumeratio Hemipt. ii, 123, 1.

Inhabits Texas.

NARVESUS, Stål.

N. carolinensis.

Narvesus carolinensis, Stål, Öfvers. Akad. Forhandl. 1859, 385, 1; Enumeratio Hemipt., 124.

Inhabits Texas, Missouri, South Carolina, and Cuba.

FAMILY EMESIDÆ.

EMESA, Fab.

E. longipes.

Cimex longipes, De Geer, Mém. iii, 352, No. 326, pl. 35, figs. 16, 17.

Ploiaria brevipennis, Say, Amer. Ent. iii, pl. 47; Complete Writings, i, 106.

Emesa filum, G. R. Gray, Griffith's Animal Kingdom, xv, 244, pl. 97, fig. 3.

Emesa pia, Amyot et Serv., Hémipt. 394, No. 2; H.-Schf., Wanz. Ins. ix, 114, fig. 937; Dohrn, Linnæa Ent. xiv, 231.

Emesa longipes, Dohrn, Linnæa Ent. xiv, 221, No. 4; Uhler, Proc. Boston Soc. Nat. Hist. 1871, 15.

Inhabits Texas, Pennsylvania, New York, Indiana, Illinois, and Connecticut.

This species has, within a few years, spread into the region adjoining Baltimore, living in the branches of small pine-trees and in out-houses and barns.

Professor Verrill kindly permitted me to examine a large series of specimens of both sexes belonging to the museum of Yale College, collected in that vicinity. There are small differences in the punctation and rugosities of the surface, and some in the width and distinctness of the white bands upon the legs. Older specimens are often suffused with red, a sort of ripening toward the autumn, which we have observed to be common in *Euschistus*, *Coreus*, *Euthoetha*, &c.

FAMILY SALDIDÆ.

SALDA, Fab.

1. *S. Signoretii*.

Salda Signoretii, Guer., in Sagra's Hist. de Cuba, 401, pl. 13, fig. 10.

Inhabits Cuba, Mexico, sea-coast of Texas, of Maryland, and of Massachusetts on the southern side of Cape Cod. It does not occur on the sea-shore north of Cape Ann, as far as I have been able to discover, although I made diligent search there and on and near Old Orchard Beach, on the coast of Maine. Its present meridional range is known to be from Cape Cod to the sand-beaches near Havana, in the island of Cuba. It is interesting to record that this pale-colored species inhabits the white, sandy spots near the beaches, while the *S. ligata* lives on the blackish gneiss boulders of our streams, and the *S. interstitialis* and other black species select the black, sandy loam adjacent to water for their dwelling-places.

On Chelsea Beach, or, rather, on the marshes there, where there are spots of earth and soil of black, grayish-brown, and almost white, the colors of the *Salda* found at rest are mainly black, pale brown, or largely white, according generally with the color of the soil.

A form of *Salda* closely allied to *S. ligata* is found in great numbers on the black mud of the salt-marshes in Eastern Massachusetts, but while adhering to the general pattern of ornamentation of its group, the black color prevails and the white spots are reduced to a minimum. Also, in these places where the conditions of soil and surroundings are so uniform and persistent, there is scarcely any variation observable in the individuals of this species. An examination of many hundreds collected over a surface of a mile or more in extent yielded but very slight variations in the shape, size, or arrangement of their markings.

2. *S. interstitialis*.

Acanthia interstitialis, Say, Journ. Acad. Phila. iv, 324, No. 1.

Inhabits Texas, New Mexico, California, Colorado, Nebraska, Missouri, Canada, British Columbia, Illinois, Michigan, Maine to Florida, Cuba, and Hayti.

3. *S. lugubris*.

Acanthia lugubris, Say, Heteropt. New Harmony, 34, No. 3.

Inhabits New Mexico, Texas, Missouri, Wisconsin, Michigan, Illinois, Maine, Canada, Massachusetts, Rhode Island, British America near Bear Lake; Saskatchewan, New York, Pennsylvania. Maryland, in September, on a black, marshy spot, overgrown with cresses, near a stream of clear water.

4. *S. ligata*.

Acanthia ligata, Say, Heteropt. New Harmony, 34, No. 1.

Inhabits Nebraska, Minnesota, Illinois, Indiana; near Quebec, Abbé

Provancher; Maine, Andover, Cambridge, Waltham, in Massachusetts, F. G. Sanborn; Maryland, May 28 until September 20, P. R. Uhler; North Carolina, James B. Bean.

5. *S. humilis*.

Acanthia humilis, Say, Heteropt. New Harmony, 35, No. 4.

Inhabits Texas, Florida, Maryland (May and June), Pennsylvania, Massachusetts, Maine, Rhode Island, California, and Illinois.

6. *S. coriacea*.

Salda coriacea, Uhler, in Hayden's Survey of Montana, 421, No. 2.

Inhabits Utah, British America, Illinois, and New England.

7. *S. luctuosa*.

Salda luctuosa, Stål, Freg, Eugenies Resa, 263, No. 123.

Acanthia luctuosa, Stål, Enumeratio. Hemipt. iii, 149, No. 8.

Inhabits California.

8. *S. saltatoria*.

Cimex saltatorius, Linn., Fauna Suec. 964; Syst. Nat. (1767), 500, No. 93.

Salda saltatoria, Fab., Syst. Rhyng. 339 H. Schf., Wanz, Ins. ii, 83, fig. 167; Wolf, Icon. Cim. 77, tab. 8, fig. 74.

Inhabits Nebraska, Illinois, Northern New York, Maine, Canada, British Columbia, and Europe.

FAMILY VELIIDÆ.

MACROVELIA, Uhler.

M. Hornii.

Macrovelia Hornii, Uhler, in Hayden's Survey of Montana, 422.

Inhabits California, Arizona, and New Mexico.

VELIA, Latr.

V. armata.

Velia armata, Burm., Handb. ii, pt. 1, 212, No. 4.

Inhabits Texas and Mexico.

Only two specimens, females, have thus far been brought to my notice. They were collected near Waco by G. W. Belfrage.

RHAGOVELIA, Mayr.

R. collaris.

Velia collaris, Burm., Handb. ii, pt. 1, 212, No. 5.

Rhagovelia collaris, Mayr, Novara Reise, Hemipt. 180.

Velia Fieberi, Guer., in Sagra's Hist. de Cuba, Ins. 416.

Inhabits the Atlantic region, Florida, Texas, Mexico, Cuba, and Hayti.

Dr. Burmeister's types came from near Port au Prince. One hundred and fifty miles west of that place I found them quite abundant upon a quiet land-locked place in the Grand Anse River, where they were very abundant, and where they occurred both winged and un-winged.

FAMILY HYGROMETRIDÆ.

HYGROTRECHUS, Stål.

1. *H. remigis*.

Gerris remigis, Say, Heteropt. New Harmony, 35, No. 1.

Inhabits Texas, Arizona, Colorado, and the Atlantic region.

Lieutenant Carpenter collected specimens in the mountains of Colorado in July.

2. *H. robustus*.

Hygrotrechus robustus, Uhler, in Packard's Insects Inhabiting Salt-Water, Silliman's Journal, 1871, i, 105.

Inhabits Clear Lake, California.

It is of much interest to know whether the pale colors of this and of the other *Hemiptera* of salt-lakes are caused by the presence of alkaline substances in the waters; or, have only immature specimens been met with by those who have collected there?

LIMNOPORUS, Stål.

L. rufoscutellatus.

Limnoporus rufoscutellatus, Lat., Genera et Sp. Ins. iii, 134, 2.

Mountains of Colorado, July, Lieutenant Carpenter.

From the numerous specimens which I have examined, this species seems to be common in Colorado. In that region, it attains to full proportions, and puts on its clearest russet-brown coat. It is quite common on still waters in early summer in Eastern Massachusetts. But near Baltimore I have met with it only twice—in early spring, and then only in the most dwarfed specimens that I have ever seen. The wide distribution of these insects may be brought about by the agency of birds and reptiles. The cranes and wild ducks frequent occasionally the pools in the fresh-water marshes where these insects live, and on the eastern side of our continent it is within the limits of the range of these birds that this species has been found most frequently. Our toads and frogs cram themselves with insects of the water and marsh, and to the rough backs and flanks of these creatures the ova and young of our water-skimmers might readily adhere, and be transported to a considerable distance from their original habitat.

FAMILY PELOGONIDÆ.

PELOGONUS, Latr.

P. americanus. New sp.

Broadly oval, slaty-blackish, opaque, the pronotum a little narrower than the abdomen. Head polished, minutely punctured in part, invested with very sparse silvery prostrate pubescence, which is more dense beneath; rostrum reaching the end of the second ventral segment, blackish-piceous on the swelled base, the remainder pale rufo-testaceous; antennæ pale piceous; face obsoletely carinate, each side with a series of oblique wrinkles, its anterior and lateral boundaries carinated. Pronotum transverse, velvety blackish, with a few short wavy lines and some dots of bluish lead-color, and remotely golden pubescent; the lateral margins slightly oblique, only a little narrowing anteriorly, and rounding against the anterior angles, which are distinct and almost

acute; touching the margin a little way back, each side, is a small triangular yellow spot; posterior angles subrectangular; the posterior margin waved each side of the center, where it is also a little yellowish. Pectoral surface dull black, with very sparse sericeous scales exteriorly; the spots of the dorsal margin equally visible beneath; sternal margins piceous. Legs dull pale piceous-yellow. Hemelytra broad, widening posteriorly, velvety black, pubescent, sprinkled with golden pubescence, spotted and dotted with bluish lead-color; the costal margin yellow, and with five small yellow spots; membrane bluish lead-color, with the nervures black. Venter piceous black, densely, minutely sericeous pubescent, the edges of the segments and the tip of the last one a little reddish-piceous. The connexivum is unspotted, and the surface of the tergum black, polished, with rufo-piceous edges to the segments.

Length, 5 millimeters. Width of pronotum, $2\frac{1}{2}$ millimeters. Width across the hemelytra, scantily 3 millimeters.

Inhabits Texas, Illinois, Eastern Massachusetts, Pennsylvania, and Cuba. A specimen from near Dedham, Mass., collected near water, in April, was sent to me by F. G. Sanborn; also, an immature one from near a spring, in York County, Pennsylvania, was kindly given to me by Dr. F. E. Melsheimer.

The species has thus far been detected in but a very few places, and only by the most scrutinizing collectors. It occurs near water in places which are overgrown with marsh-plants. It may be at once known from the European one by being wider posteriorly than in front, and by the absence of the quadrate yellow spots from the connexivum.

A specimen from Cuba, obtained by Professor Poey, has the spots of the costal margin of the hemelytra almost obsolete; but it agrees with the United States form in all other respects.

The pattern of marking on the costal margin of the hemelytra is in close imitation of that commonly seen upon the connexivum of various Pentatomids, Scutellerids, and Coreids. It can serve no purpose in protecting the creature from its enemies, and does not belong to one sex more than to the other. Characters of this kind are usually acquired at the time of changing the last nymph-skin to become an imago.

FAMILY GALGULIDÆ.

GALGULUS, Latr.

1. *G. oculatus*.

Naucoris oculata, Fab., Syst. Rhyng. 111, No. 5.

Galgulus oculatus, Latr., Hist. Nat. Ins. xii, 286, pl. 95, fig. 9; Fab., Ent. Syst. suppl. 525, Nos. 3-4.

Galgulus bufo, H.-Schf., Wanz. Ins. v, 88, fig. 536.

Inhabits Texas, Arizona, Indian Territory, Missouri, Illinois, Michigan, and the Atlantic region generally. In New Jersey, and in some sections of Maryland, there are two broods annually, the one in May and the other in August.

Prof. Cyrus Thomas observed this species leaping to seize (as he supposed) *Xya terminalis*, in the State of Illinois.

2. *G. variegatus*.

Galgulus variegatus, Guer., Iconog. Règne Animal, 352.

Galgulus pulcher, Stål, Öfv. Vetensk. Akad. Förhandl. 1834, 239, No. 1.

Inhabits Southern Texas, Mexico, California, Florida, Cuba, Georgia, South Carolina, and Maryland. In the last-mentioned State, a single

specimen occasionally occurred in the flocks of these creatures which affected the marshy and damp margins of some of our streams; but recently they have failed to appear, and only the *G. oculatus* remains in smaller numbers.

MONONYX, Lap.

M. badius.

Mononyx badius, H.-Schf., Wanz. Ins. ix, 27, fig. 894.

Mononyx obscura, Stål, Öfv. Vetensk. Akad. Förhandl. 1854, 239, No. 3.

Inhabits San Diego, California, Mexico, Panama, &c.

It varies considerably in the depth and clearness of the brown color.

FAMILY NAUCORIDÆ.

NAUCORIS, Geoff.

N. Poeyi.

Naucoris Poeyi, Guer. (*nec* Amyot), Icones Règne Animal, 352, pl. 57, fig. 5; La Sagra's Hist. Île de Cuba, 175.

Inhabits Texas, Mexico, Cuba, Rio in Brazil, Illinois, Michigan, and the Atlantic region from Cape Cod to Southern Florida. *Ambrysus Poeyi* from Mexico is quite different from this.

AMBRYUS, Stål.

1. *A. Signoreti*.

Ambrysus Signoreti, Stål, Hemipt. Mex. Stettiner Ent. Zeit. xxiii, 460, No. 336.

Naucoris Poeyi, Amyot et Serv., Hémipt. 434, pl. 8, fig. 5 (*nec* Guerin).

Inhabits California, Mexico, Arizona, and New Mexico.

2. *A. melanopterus*.

Ambrysus melanopterus, Stål, Hemipt. Mex. 460, No. 337.

Inhabits Mexico and Arizona.

FAMILY BELOSTOMIDÆ.

BELOSTOMA, auctor.

1. *B. americanum*.

Belostoma americanum, Leidy, Journ. Acad. Phila. new ser. i, 66.

Inhabits Texas, and the Atlantic region from Massachusetts to Florida.

2. *B. annulipes*.

Belostoma annulipes, H.-Schf., Wanz. Ins. viii, 28, figs. 803, 804.

Inhabits Western United States, Mexico, Central America and Northern South America, Texas, and occurs more rarely in the Atlantic region.

BENACUS, Stål.

B. griseus.

Belostoma grisea, Say, Heteropt. New Harmony, 37, No. 2.

Belostoma haldemanum, Leidy, Journ. Acad. Phila. new ser. i, 66 (plate).

Benacus haldemanus, Stål, Öfv. Vetensk. Akad. Förhandl. 1861, 205.

Belostoma angustatum, Guer., La Sagra's Hist. de Cuba, 420.

Inhabits Texas, Cuba, and the Eastern United States from Massachusetts to Florida inclusive.

ZAITHA, Amyot & Serv.

1. *Z. fluminea*.

Belostoma fluminea, Say, Heteropt. New Harmony, 37, No. 1.

Perthostoma aurantiacum, Leidy, Journ. Acad. Phila. new ser. i, 60.

Inhabits almost all the region east of the great plains, Texas, and Louisiana.

2. *Z. fusciventris*.

Zaitha fusciventris, Dufour, Ann. Soc. Ent. France, 4th ser. iii, 389, No. 11.

Inhabits Arizona, California, and Mexico.

SERPHUS, Stål.

1. *S. dilatatus*.

Belostoma dilatata, Say, Heteropt. New Harmony, p. 38, No. 3, 3.

Serphus dilatatus, Stål, Hemipt. Mex. Stettiner Ent. Zeit. xxiii, 462.

Zaitha Stollii, H.-Schnf., Wanz. Ins. ix, 35, fig. 893.

Inhabits California, Arizona, and Mexico.

PEDINOCORIS, Mayr.

1. *P. brachonyx*.

Pedinocoris brachonyx, Mayr, Verhandl. Wien. zool.-botan. Gesells. 1863, 351, tab. 11, fig. 5.

Zaitha indentata, Hald., Proc. Acad. Phila. vi. p. 364.

Inhabits California.

2. *P. macronyx*.

Pedinocoris macronyx, Mayr, Verhandl. Wien. zool.-botan. Gesells. 1863, 350, tab. 11, figs. 1-4.

Inhabits California.

ABEDUS, Stål.

A. oratus.

Abedus oratus, Stål, Stettiner Ent. Zeit. xxiii, 461.

Stenosecytus mexicanus, Mayr, Verhandl. Wien. zool.-botan. Gesells. 1863, 347, tab. xi., figs. 6-10.

Inhabits Arizona, Texas, Mexico, and Central America.

FAMILY NEPIDÆ.

RANATRA, Fab.

1. *R. fusca*.

Ranatra fusca, Beauv., Ins. Afr. et Amer. 235, pl. 20, fig. 1.

Ranatra nigra, H.-Schnf., Wanz. Ins. ix, 32, tab. 290, fig. L.

Inhabits Texas, the Southern States, and the Atlantic region.

2. *R. quadridentata*.

Ranatra quadridentata, Stål, Öfv. Vetensk. Akad. Förhandl. 1861, 204.

Inhabits Texas, Mexico, California, Arizona, Illinois, and the Southern States.

NOTONECTIDÆ.

NOTONECTA, Linn.

N. insulata.

Notonecta insulata, Kirby, Fauna Bor.-Amer. iv, 255, No. 399

Notonecta rugosa, Fieb., Rhynchotographien, 52, No. 7.

Mountains of Colorado, July (Lieutenant Carpenter).

The immediate vicinity of Baltimore no longer admits this species, although it at one time inhabited the pools of spring-water, as well as the little basins themselves which the springs excavated in their outward flow. Now, the waters are polluted by the foulness of the drainage, while many of them have become obliterated by drying up. Still, at a distance of twenty miles or more from the city, here and there a basin of clear cold spring-water still remains, and in this a few specimens may be occasionally met with.

Our common species, the *N. undulate*, Say, on the contrary, inhabits the foulest pools. And in the dirty slush occasioned by the drainage of slaughter-houses, and in the slimy ponds attached to some of our brick-yards, it revels as if in full enjoyment of the filth.

CORISIDÆ.

CORIXA, Geoff.

1. *C. sutilis*. New sp.

Long and moderately narrow; dark brown, opaque, marked with testaceous. Head angular; face moderately broad, pale testaceous, with a range of golden bristles along the margins, inferiorly, of the fovea of the male, and at the apex of the epistoma is a dense tuft of similar, but longer, bristles. Outer margins of the fovea carinated, and the adjoining surface coarsely punctate; the fore part of cranium embrowned, and with three or four series of coarse shallow punctures each side; middle line elevated, tapering posteriorly, and terminating in an acute point on the angular tip of the occiput; posterior edges of the head carinately elevated. Pronotum short, broad-cordate, emarginate in front, rastrated, with twelve to fourteen closely-placed yellow lines, of which two or three on the middle are forked at the ends; medial line acutely, almost percurrently, carinate; lateral margins brown. Pleura dull black, the upper part of the pieces more or less broadly testaceous. Legs pale testaceous; palæ falcate, a little curved at tip, moderately narrow, tapering, acute, scarcely differing in the two sexes. Clavus and base of the corium finely rastrated, the apical part of the latter minutely shagreened, yellow lines of the former complete at base, sometimes a little forked at both ends; those farther back are broken into two ranges, and appear more or less angularly sigmoid; lines of the corium forming four or five longitudinal series of close, angularly sigmoid lines; those of the membrane longer, vermiculate. Tergum dull black, but the connexivum and posterior margin of the segments testaceous. Venter black at base, sometimes black as far as to the posterior part of the fourth segment. The ventral surface is usually less marked with black in the females than in the males.

Length to tip of hemelytra, 10 millimeters; width across the pronotum, 3 millimeters.

Collected in the mountains of Colorado, by Lieutenant Carpenter, July to September.

The very acutely angular occiput, with its carina and raised edges,

and the sharply-defined carina of the pronotum, will readily distinguish this species from its congeners.

At the extreme apex of the occiput is a minute notch to fit over and admit the carina of the pronotum.

2. *C. vulnerata*.

Corixa vulnerata, Uhler, Proc. Acad. Phila. 1861, 284.

Inhabits Montana, Oregon, and Northern Illinois. Common in many sections of the Northwestern Territories of the United States, and no doubt yet to be discovered in British Columbia and Canada.

3. *C. interrupta*.

Corixa interrupta, Say, Journ. Acad. Phila. iv, 328, No. 1.

Corisa interrupta, Fieb. Species Generis Corisa, 27, No. 28.

Inhabits California, Missouri, Illinois, New England, New York, Maryland, and Minnesota. Said by Fieber to be found also in Mexico and Brazil.

It presents some variation in the depth of color, and in the distinctness of the lines of the pronotum and hemelytra.

4. *C. decolor*.

Corixa decolor, Uhler, in Packard's Insects Inhabiting Salt-Water, Silliman's Journal, 1871, 106.

From Clear Lake, California; collected by Professor Torrey.

The soft and tender condition of the two specimens examined leaves a doubt of their being in fully-matured condition. It is important to have full series of these insects from the various kinds of lakes, ponds, and streams, particularly from the alkaline ones, so that something may be settled respecting the influence of such waters upon them.

5. *C. calva*.

Corixa calva, Say, Heteropt. New Harmony, 38, No. 1; Fieb., Generis Corisa, 19, No. 12.

Inhabits Pennsylvania, Massachusetts, Canada, Texas, and Alaska (*teste* Fieber).

6. *C. abdominalis*.

Corixa abdominalis, Say, Heteropt. New Harmony, 38, No. 2.

Corixa bimaculata, Guér., Iconographie Règne Animal, 353.

Inhabits Mexico, California, and Texas.

7. *C. præusta*.

Corixa præusta, Fieb., Species Generis Corisa, 28, No. 30, tab. i, 17, figs. 1-18.

Inhabits Sitka and Alaska.

8. *C. striata*.

Corixa striata, Kirby, Fauna Bor.-Amer. iv, 283, No. 1.

Notonecta striata, Linn., Fauna Suecicæ, 904.

Inhabits British America and Nebraska, and seems to extend around the world in the northern division of the north-temperate zone.

9. *C. fossarum*.

Corixa fossarum, Leach, Linn. Trans. xii, 17, No. 4; *idem*, Fieb., l. c., 32, No. 57

Inhabits California and Northern Europe.

10. *C. Germarii*.

Corixa Germarii, Fieb., l. c., 33, No. 48.

Inhabits Alaska and Northern Europe.

11. *C. mercenaria*.

Corixa mercenaria, Say, Heteropt. New Harmony, 39, No. 3.

Inhabits Mexico, California, &c.

12. *C. Escheri*.

Corisa Escheri, Heer, Insektenfauna von Oeningen, iii, Rhynchoten, 87 (foot-note.)

Above blackish-fuscous; pronotum with eight transverse lines; lineoles of the hemelytra almost parallel, black, angularly waved; front, pectus, and legs pale-yellowish. Head pale-yellowish, with dusky, blackish eyes. Pronotum very short, with a not very distinct medial carina; the first five transverse lines simple and parallel; the succeeding ones branching. Clavus distinctly rastrated, having short, but parallel yellow, transverse lines, the sutural interval narrow and yellow; corium also rastrated, but the rastrated lines obsolete posteriorly; membrane smooth, not rastrated; the parallel lines are subparallel, but become shorter and less regular posteriorly. Mouth, pectus, and legs pale yellow; the palæ stout, narrowing toward the tip, inferiorly with two series of slender bristles. Venter pale-yellowish; the bases of the segments shaded with blackish.

Length, 5 lines.

Inhabits New Georgia, coast of Washington Territory.

This translation of the original description is introduced here for the benefit of the many entomologists who are not likely ever to see the rare volume in which it so unexpectedly occurs; also in the hope that it may meet with attention from those who are favorably situated for recovering and placing within the reach of American students this conspicuous representative of the fauna of the Pacific coast.

SUBORDER HOMOPTERA.

Rostrum attached to the forepart of the head; the front situated either anteriorly or beneath, but not superiorly; the hemelytra homonomous, usually slanting in opposite directions, as the roof of a house.

The species are ærial and plant-feeders, and none are aquatic. Legs formed for walking or leaping.

FAMILY STRIDULANTIA.

CICADA, Fab.

1. *C. rimosa*.

Cicada rimosa, Say, Journ. Acad. Phila. vi, 235, No. 2.

Obtained at Ogden, Utah, by Prof. Cyrus Thomas.

2. *C. synodica*.

Cicada synodica, Say, Journ. Acad. Phila. iv, 334, No. 6.

This pretty little species seems to be common in Eastern Colorado. The present specimens were collected in that region by Mr. B. H. Smith and by Prof. C. Thomas.

3. *C. dorsata*.

Cicada dorsata, Say, Journ. Acad. Phila. iv, 331, No. 3.

This is the grandest and most beautiful of the large western species of *Cicada*. Its note is said to be loud, piercing, and sustained, and from the great strength of the base of the wings and their fasciculæ of muscles the species must be one of the most vigorous and rapid in flight.

The specimens here noticed were collected in Colorado by Prof. C. Thomas.

4. *C. canicularis*.

C. canicularis, Harris, Insects of Mass. 217, fig. 88.

From the mountains of Colorado. The specimen corresponds in size, structure, and markings with those from Eastern Massachusetts and other parts of New England. New Jersey seems to be the region where it varies most in size and kind of marking.

5. *C. hesperia*. New sp.

Form and general appearance of *C. rimosa*. Fusco-piceous, or, when less mature, dull ochreous; the surface generally invested with yellowish prostrate pubescence, the sutures and depressions with erect pubescence. Head narrower than the front of pronotum; face densely pubescent; the outer margins, central line, orbital prominences, and basal joint of rostrum orange-yellow; frontal ridge and lower part of cheeks coated with prostrate pubescence; the outer region of the cheeks having long hairy pubescence. Rostrum reaching to the intermediate trochanters. Cranium with dense prostrate pubescence; central longitudinal line impressed; running from the ocelli each side obliquely is a similar impressed line; suprafrontal space tabulate, depressed, having the central ocellus deeply seated in a large lunate excavation. Antennæ black. Pronotum obliquely narrowing and declining anteriorly; the lateral and posterior margins yellow; oblique impressions each side of disk ochreous; anterior margin and posterior submargin linearly elevated; the posterior margin broadly sinuated each side; the posterior angles produced obliquely, and elevated in a broad flap with rounded angles, the surface of the flap obliquely striated; lateral margin in front of the flap sinuated, directed downward; anteriorly to this the margin proceeds upward, and is tabular as far as to the angularly-toothed anterior angle. Mesonotum smooth; the latero-posterior margins sinuated, yellow; the disk is marked with four angular yellow spots. Wing-covers infuscated on the basal half, the nervures fuscous, and the posterior basal flap bright red; costal edge yellowish; wings at base and nearly the whole of the basal flap red; beyond the base, the nervures are more or less bounded with fuscous. First apical areole shorter than the second, and about half as wide, elongate-elliptical, acute at both ends. Pectus pale yellowish; disks of the pleural pieces blackish. Legs testaceous, but more or less suffused with piceous, particularly upon the tarsi and upon the anterior pairs of femora. Tergum yellow on the posterior margin and sides of the segments, excepting the basal one; venter, excepting the base, but including the genital covers, testaceous. Apex of the last ventral segment bilobate. Posterior margin of the last tergal segment subentire. Penis-sheath elliptical, narrowed, and sinuated each side from beyond the middle to the tip, the apex curved downward; inferior genital-cover rounded at base, acutely tapering at tip.

Length, exclusive of genital-cover, 19 millimeters; expanse of wings, 51 millimeters; width of base of pronotum, 9 millimeters.

Collected in the vicinity of Denver City, Col., by C. Thomas.

This species is closely related to *C. rimosa*, Say, and must be referred to the same subdivision of the genus. It differs most from that species in the shape of the head, sides of pronotum, and form of genital pieces. Nevertheless, I do not doubt that, when all the heteromorphs of *C. rimosa* have been sufficiently studied in the regions which they affect, local forms will be discovered to connect all the extremes into one complete species-cycle. Enough is already known of the influences of soil, physical and chemical agencies, excess or insufficiency of nourishment, and of extremes or sudden emergencies of weather to show us that certain flexible types of insect-life are changed thereby, but which may continue fixed in a particular type in the region where the conditions remain stable. Transportation from one locality to another of a different kind also stamps characters suitable to the changed conditions of life of the species.

6. *C. areolata*.

Cicada areolata, Uhler, Proc. Phila. Acad. 1861, 285.

Collected in Cache Valley, Utah, by C. Thomas, but previously known from San Mateo, Cal. (A. Agassiz); from Ogden, Utah; from Virginia City, Nev. (J. Behrens); and from Washington Territory.

FAMILY MEMBRACIDÆ.

CERESA, Fairm.

1. *C. diceros*.

Membracis diceros, Say, Long's Expedition, appendix, 299.

Obtained at La Bonte by C. Thomas. This species is very widely distributed throughout temperate North America.

2. *C. bubalus*.

Membracis bubalus, Fab., Ent. Syst. iv, 14.

Common in most parts of the United States. The present specimens were collected in Wyoming Territory by C. Thomas. In Maryland, this species is exceedingly abundant in late summer on the twigs and leaves of the willows growing in damp and wet situations. It varies somewhat in colors, but remarkably in the form of the pronotum. The lateral angles of the pronotum are produced and curved in some; in others, short and blunt; in others, straight and acute; and, in still others, slender, acute, and with a hollowed space in front of the pronotum. Usually, they are almost uniform pea-green; but varieties occur which are more or less mottled, and marked with rufous or fuscous.

Lieut. W. B. Carpenter found this species in the vicinity of Eagle River, Colorado, in August, 1873, and also in various other parts of Colorado from June to September.

ENCHENOPA, Amyot & Serv.

E. curvata.

Membracis curvata, Fab., Syst. Rhyng. 13, No. 34.

Membracis latipes, Say, Long's Exped. ii, 302, 5.

One specimen from Eagle River, Colorado, August 29, by Lieut. W. B. Carpenter.

TELAMONA, Fitch.

T. querci.

Telamona querci, Fitch, Fourth Annual Report of the State Cabinet New York, 51, No. 8.

A single specimen of a pale variety, destitute of the usual dorsal vitta, was collected by Lieutenant Carpenter in Colorado. It agrees in shape with specimens from New York and elsewhere, but differs in being pale brown, almost uniform. This may be an immature specimen, and the alcohol in which it was placed has deprived it of its original colors.

ARCHASIA, Stål.

A. galeata.

Membracis galeata, Fab., Syst. Rhyng. 9, No. 13.

Smilia auriculata, Fitch, Fourth Report, 49, No. 7.

Collected in Utah by C. Thomas. The species is widely distributed in the United States, but does not seem to be very abundant in any of the localities yet reported. It differs much in the altitude and degree of curvature of the pronotum, as well as in its breadth and sharpness. Specimens from Utah appear to be as large and high as any from the most favorable regions of Illinois and Georgia.

This and *Smilia camelus*, Fab., are the only conspicuous representatives of the great group of Membracids which form such a remarkable feature of the homopterous fauna of tropical America. In these, we have the most agreeable green color, delicately mottled with a lighter tone, or with rose, slightly flecked with black on the summit of the pronotum. In strong contrast with these, the South American species are black, with pale bands or spots, or of some pale color, with black stripes or spots. In a very few of them only do we meet with red markings.

PUBLILIA, Stål.

1. *P. concava*.

Membracis concava, Say, Long's Expedition, appendix ii, 301.

From Utah, collected by C. Thomas. It inhabits most of the regions in the eastern part of the United States; but this is the first time that it has been recorded from west of the Missouri.

There is a system of reticulated raised lines on the sides of the pronotum, which give the appearance of neuration as belonging to the corium of certain Lepyrionias. This is quite deceptive to the unpracticed eye, and might lead to the supposition that the hemelytra have been soldered together. Such is not the case, however, and the true hemelytra, although largely covered by the pronotum, are still present and perfectly developed.

2. *P. modesta*. New sp.

General form of *P. concava*, Say, but more decidedly vertical in front, and with the dorsal outline scarcely depressed before the middle; apex of the pronotum more slender and acute. Color pale yellow; the head and fore part of pronotum clouded with pale brown; a spot above the humeri, a broad oblique band behind the middle, and a broad cloud on the apex grayish-brown; the dorsal edge irregularly spotted with dark brown, and the oblique band surmounted by a large brown spot. The surface closely beset with series of coarse sunken punctures; the longitudinal and reticulated surface-lines obsolete. Humeral margin of the

sinus waved. Under side piceo-testaceous; the front, clypeus, pectus, and venter, excepting the edges of the segments, black-piceous. Legs dull yellow, closely pubescent, clouded, and spotted with brown.

Length, 4 to 4½ millimeters. Breadth of pronotum, 2 millimeters.

Colorado (C. Thomas); also discovered in Utah, Dakota, Arizona, New Mexico, and California.

In two specimens examined, the commonly raised lines on the surface of the pronotum were obliterated.

ACUTALIS, Fairm.

1. *A. tartarea*.

Membracis tartarea, Say Journ. Acad. Phila. vi, 242, No. 1.

Utah; collected by Prof. Cyrus Thomas. It inhabits also the eastern region of the United States from Massachusetts to Florida. A variety of this species lacks the opaque-black color of the hemelytra, and has instead a clear hyaline throughout.

The other representatives of this genus in North America are the following, which, from their wide distribution, will probably be discovered hereafter in several of the Western Territories:—

2. *A. semicrema*.

Membracis semicrema, Say, Journ. Acad. Phila. vi, 242, No. 2.

Acutalis anticonigra, Fairm., Ann. Soc. Ent. France, sér. 2, iv, 1846, 498, No. 7.

Thus far discovered in Florida, Mississippi, New York, and Mexico.

3. *A. dorsalis*.

Tragopa dorsalis, Fitch, Fourth Annual Report Regents N. Y. State Cabinet, 52.

Originally described from New York, but it has since been found in Texas. Differs from *tartarea*, Say, in being more finely punctate, and in having more slender nervules, and larger areoles in the hemelytra.

4. *A. calva*.

Membracis calva, Say, Journ. Acad. Phila. vi, 242, No. 3.

Smilia flavipennis, Germar, Silb. Revue Ent. iii, 240, No. 16.

Acutalis flavipennis, Fairm., Ann. Soc. Ent. Fr., sér. 2, iv, 497, No. 5.

Common in Pennsylvania and Maryland, on a species of *Eupatorium*, which bears a pink flower. Also found in Texas, Mexico, Florida, and Massachusetts.

It is variable in the arrangement of the black and yellow, particularly above. Such is also the case with the other species cited above.

CYRTOSIA, Fitch.

C. fenestrata.

Cyrtosia fenestrata, Fitch, Fourth Annual Report State Cabinet, 49, No. 2.

Colorado; collected by C. Thomas. Common in the Atlantic region, and also found in Dakota.

FAMILY CERCOPIDÆ.

APHROPHORA, Germ.

A. permutata. New sp.

Pale olive-brown; form of *A. parallela*, Say. Face soiled yellow; front prominent, the cross-ridges coarse and distinct, the middle

faintly embrowned and distinctly indented. Rostrum dull testaceous, piceous at tip, reaching upon the second ventral segment. Cranium scooped out, the anterior edge sharp and curved upward; the surface coarsely and irregularly punctate in the depressed spaces, but more regularly on the rounded central lobe, this lobe deeper brown, fuscous behind, and with a medial pale line; ocelli red; occipital margin triangularly excavated to receive the produced triangular front of the middle of the pronotum, the margin each side elevated, and the base of median line elevated. Pronotum a little shorter than in *A. parallela*, Say, the lateral margin deeply sinuated and not slanting so narrowly; surface a little clouded with brown, distinctly and irregularly punctate, the punctures more dense anteriorly and on the sides; the disk convexly elevated, deeply sunken before the anterior margin, and twice depressed each side, the middle line pale, slender, feebly elevated. Scutellum pale ochreous, finely punctate, depressed, and infuscated in the middle, and with the tip paler and very acute. Legs pale testaceous, the femora more or less clouded with brown, and the incisures of the tarsi piceous. Hemelytra pale brown to beyond the middle, the apical portion brownish-white, with dark nervures; base, an entire oblique band before the middle, and a similar shorter one behind the middle dark brown, both these bands margined posteriorly with whitish, coalescing spots, some of which are occasionally carried back upon the middle of the disk. Wings brownish-white. Tergum ochreous; venter and pectus pale testaceous, the latter sometimes with brown spots on the middle coxæ and disks of the posterior pleural segments.

Length to tip of hemelytra, $8\frac{1}{2}$ to 12 millimeters. Width across base of pronotum, 3 to $3\frac{1}{2}$ millimeters.

Collected in Colorado and Utah by the surveys; but sent to me on several occasions, from near San Francisco, by the kindness of James Behrens.

It varies so much in depth of colors and pattern of marking that it is almost impossible to characterize the varieties. One of these varieties is almost a fac-simile of the European *A. corticea*, Germar.

2. *A. quadrangularis*.

Cercopis quadrangularis, Say, Journ. Acad. Phila. iv, 335.

Colorado and Utah; collected by the surveys.

This species is found widely spread over the country from Maine to Florida and from Texas to Dakota.

PHILÆNUS, Stål.

1. *P. abjectus*. New sp.

Fuscous, paler, with a tinge of ochreous on the head and front of pronotum, densely golden pubescent above, hoary pubescent beneath. General form of *L. coleoptrata*, Linn., but with a slightly more acute head. Cranium very finely punctate, densely pubescent, the frontal lobe margined with black, as also the occipital edge; ocelli black, placed on short, sunken, black lines; front ochreous, pubescent, the transverse ridges black, central line coarsely punctate, depressed; superior cheeks, with a broad whitish vitta, which is densely hoary pubescent; inferior cheeks piceous, paler below; rostrum pale piceous, darker on the sides, reaching to the posterior coxæ; antennæ piceous, paler at base. Anterior rim of head a little thickened, slightly raised above the surface of the cranium, and channeled from the central lobe to the eyes. Pronotum brown, clouded with fuscous, densely pubescent, irregularly and

unequally punctate, the posterior margin triangularly emarginate, the anterior margin angularly curved, the disk convexly elevated; in front of it the surface is broadly depressed, having on the submargin an indentation in which a pair of black, impressed dots are placed, and on each side two round indentations, and near the lateral margin a still smaller, less distinct one; lateral angles a little prominent, the edge acute. Scutellum reddish-brown, depressed in the center. Pectus yellow, the lateral pieces and sternum more or less piceous. Legs ochreous, the anterior and intermediate pairs brownish or piceous, the tips of the tibial spines and the ends of the tarsal joints black. Hemelytra pale reddish-brown, paler at tip, an angular spot near the base in the costal areole, and a large spot on the disk running to the inner margin, as also most of the clavus, piceous-blackish; between the spots on the costal areole is a large whitish spot; nervures of the apex a little ramose, dark piceous; costal margin at base pale; wings pale brownish, the nervures piceous. Venter rufo-piceous, with the incisures of the segments paler.

Length to tip of hemelytra, 6 to 7 millimeters. Width of base of pronotum, 2 to $2\frac{1}{2}$ millimeters.

Collected in Colorado by Prof. Cyrus Thomas and others.

2. *P. lineatus*.

Cicada lineata, Linn., Systema Naturæ [ed. 12], 709, No. 31.

Collected on the hills and high mountains of Colorado by Lieutenant Carpenter, and in Colorado by Prof. C. Thomas and others. This species is widely distributed in North America. My friend, the lamented Robert Keunicott, collected specimens in the vicinity of the Yukon River, Russian America, as well as in many places along the route of his expedition from the Red River of Minnesota to the region of the Mackenzie River. On the eastern side of the continent, it extends from the Hudson Bay region to near Chelsea, Mass. Near Portland, Me., I found it to be very common on plants and low bushes in damp situations. It, also, inhabits Newfoundland, Nova Scotia, and Canada. A variety is the *Aphrophora bilineata*, Say (Journ. Acad. Phila., vi, 304). It was originally described from Sweden, and has been often reported from the various countries of the north of Europe, including Great Britain. As I have seen specimens also from Siberia, Kamtschatka, and Japan, it seems certain that this species is now spread around the circuit of the globe in the north-temperate and sub-arctic regions.

Suitable conditions of wind and current, as well as the medium of commercial transportation, have furnished agencies capable of distributing this insect from the Asiatic continent to the North American; and the abundance of specimens occurring in the localities where it is found shows how well it has adjusted itself to the variety of physical conditions with which it has had to contend.

3. *P. spumaria*.

Cicada spumaria, Linn., Fallen Hemipt. Suecicæ, 14, No. 5. •

Originally described from Northern Europe. But it is now known to inhabit also England, Germany, and Switzerland. I have examined one or other of its numerous varieties from Utah, Dakota, Sitka, Lake Winnipeg, and on the eastern side of the continent from Nova Scotia, Canada, Maine, and New York. Near Brunswick, Me., it is quite common, and presents a great number of varieties, some of which are identical with those of England.

LEPYRONIA, Amyot & Serv

L. angulifera. New sp.

A broad, short, gibbous species, rather more inflated than the dwarf specimens of *L. coleoptrata*, Linn. Pale fuscous or grayish-brown, closely coated with small, prostrate, golden or hoary, pubescence, the upper surface minutely and closely punctate. Head a little more than one-half as long as the width between the eyes; the cranium depressed, indented each side of base and on the basal prominence; each side of submargin, center of tylus, and a short transverse line near the anterior angle of each eye impressed; tylus with a short carina near the base; anterior edge of head a little recurved, triangularly rounded. Face and under side of body piceo-fuscous; the front broad, a little flattened on the middle line; antennæ piceous, and, excepting the basal joints, as fine as a hair. Pronotum short, the anterior margin straight, the latero-posterior margins feebly sinuated, the lateral margins short, direct, a little oblique; surface deeply impressed on the middle line as far as the center of the disk, the disk a little convex, each side of it anteriorly with about three round indentations, the anterior submargin with an impressed point each side behind the eyes. Scutellum obsolete grooved on the middle, the apex whitish; just behind it is a blackish spot. Legs dark piceous, more or less rufescent, scabrous, sericeous pubescent; the femora with a medial and apical yellow band, the under side longitudinally grooved; spines of tibiæ and tarsi yellow, tipped with black. Hemelytra paler posteriorly, more or less clouded with fuscous, minutely punctured and shagreened, with an oblique, fuscous, macular band at the base of the membrane; nervures dark fuscous, or black, with the apical ends of a few of them forked; costal margin broadly arched, and with a pale spot before and another behind the middle, sometimes also with a few pale dots aggregated near the middle and inner margin. Abdomen dark fusco-piceous, margined with pale ochreous, the genital pieces usually ochreous, with the ovipositor and outer margins piceous.

Length to tip of hemelytra, 5 to 6 millimeters. Width of base of pronotum, $1\frac{1}{2}$ to $1\frac{3}{4}$ millimeters.

Collected for me in Northwestern Florida in July by Miss Modeste Hunter. Found by myself in a low marshy spot adjacent to spring-water, a few miles south of Baltimore, August 14; also in Ocean County, New Jersey, in *Sphagnum* swamps, in August. I have also examined specimens from Cuba, Texas, and Northern Mexico.

As the Mexican hemipterous fauna extends into New Mexico and Arizona, we may safely premise that this species will hereafter be collected in these Territories.

CLASTOPTERA, Germ.

C. delicata. New sp.

Form of *C. proteus*, Fitch, but with a more prominent front. Pale greenish-yellow. Head broad, apparently impunctate; cranium short, transversely depressed, as is also the tylus; anterior edge of the vertex carinately elevated, bordered from eye to eye with a black line; eyes margined behind with black; front smooth, polished, bright yellow, rounded, the transverse rugæ substituted by slender black bands; lower down grooved, and with a broad black spot, adjoining which each side on the cheeks is a smaller spot; under side bright yellow; rostrum black, reaching almost to the posterior coxæ; antennæ black at base.

Pronotum banded on the anterior edge by a slender black line, and with five straighter and more slender lines, which stop just short of the lateral margins, these lines feebly impressed, and obsolete, minutely scabrous; surface not wrinkled, almost smooth, moderately convex, deeply emarginated behind, the lateral margin narrowly produced as far as the outer line of the eyes; the humeral margin recurved, and with a small black dot before it. Scutellum pubescent, yellow, transversely wrinkled, with a slender black line at base, and an interrupted one behind the middle. Hemelytra with short, remote, golden pubescence, coarsely punctate at base, more obsolete so posteriorly; the inner and posterior margins, the suture between the corium and clavus, an oblique short streak on the disk, and a spot on the middle of the costa fuscous; posterior margin of the corium with a sinuous brown band, the membrane and posterior one-third of the corium, and a spot at base of costa pale brown; the bulla very prominent, black; under side yellow; the mesostethium, disks of the pleural pieces, and middle line of genital segment pitch-black. Legs yellow, the tibiæ having a band below the knee, another on the middle, and a third at tip, and the spines of tibiæ and tarsi, including the nails, dark piceous.

Length to tip of hemelytra, $4\frac{1}{2}$ millimeters. Width of pronotum, 2 millimeters.

Colorado and Utah; collected by C. Thomas and B. H. Smith.

FAMILY FULGORIDÆ.

SCOLOPS, Germ.

1. *S. sulcipes*.

Fulgora sulcipes, Say, Journ. Acad. Phila. iv, 335.

Common in many parts of the United States, as well east as west of the Mississippi River. The specimens collected by these expeditions occurred in Colorado, Utah, Dakota, and Arizona. Specimens have been examined by me which were obtained in Maine, Massachusetts, Connecticut, Rhode Island, New York, Iowa, Illinois, Pennsylvania, and Minnesota. In Maryland and Virginia, they occur in sedgy and grassy low spots in the corners of meadows, particularly in places near woods, in July, August, and September.

This species may be known from its allies by the long and very slender cephalic prominence, acute at tip, by the first ulnar nervure giving off three forking branches, and by the second ulnar giving off two forking branches, and with numerous cross-nervures producing several series of small areoles adjoining the tip.

Length from tip of head to end of hemelytra, $8\frac{1}{2}$ to 10 millimeters. Length of cephalic horn, 2 to $2\frac{1}{2}$ millimeters.

2. *S. hesperius*. New sp.

Straw-yellow or pale brownish, narrower than *S. sulcipes*. Cephalic protuberance shorter, broader, not compressed at tip; rostrum reaching upon the second ventral segment, the last joint black at tip; sutures of the face more or less infuscated; postocular process white, with a black dot inferiorly. Pronotum irrorated with pale brown and white, the sides and lateral pieces irregularly, obsolete tuberculate; tegular pieces minutely, confluent punctate. Mesonotum slightly guttate with pale brown, the apex tumid and emarginate just each side of the extreme tip; metapleura and sternum whitish. Carinate lines of the coxæ and legs whitish; the spaces between usually brownish. Heme-

lytra less gibbously convex than in *S. sulcipes*, the nervures stouter, pale, and interruptedly spotted with brown, the first ulnar nervure forked beyond the middle, the second ulnar forked before the middle; the apex with but two or three series of cross-nervures; the costal area sometimes with two or three cross-nervures at tip; the costal margin very moderately arcuated. Wings milky-white, the nervures brown. Tergum reddish-brown, darker in the center; the margins of the segments and the connexivum pale-yellow.

Length from tip of head to end of hemelytra, 8 millimeters. Width of pronotum, $2\frac{1}{4}$ millimeters. Length of cephalic horn, $1\frac{1}{2}$ millimeters.

Southern Colorado, C. Thomas; and Denver City, from B. H. Smith.

In the specimens which I have examined, there is an entire absence of the large black spot of the sides anteriorly of the pronotum, so conspicuous in *S. sulcipes*, Say.

3. *S. grossae*. New sp.

Shorter and more robust than *S. sulcipes*; the cephalic horn as long, but much stouter, than in that species; very wide on the upper face, and the apex blunt and vertically carinate. Sides of protuberance, cheeks, and anterior pleural pieces infuscated, guttate with whitish, the lateral keels distinctly sinuate a little distance in front of the eyes; rostrum tipped with black, reaching almost to the genital segment. Pronotum curved toward the front more narrowly than in *S. sulcipes*; the geminate indentations present, but not black; the sides a little granulate. Mesonotum short and broad, the apex feebly tumid; femora more or less dotted with brown; hemelytra short and wide, strongly arcuated, more oblique at tip than in *S. sulcipes*, clouded with brown, and with a few pale transverse patches across the corium; the nervures thick, remotely and irregularly spotted with fuscous; the first and second ulnar nervures forked on the same line just before the middle of the corium; the apical cross-nervures very few, and the costal area with four or five cross-nervures near the tip. Wings smoky-brown, with the nervures darker; tergum more or less orange, shaded with fuscous.

Length from tip of head to end of hemelytra, 8 to $8\frac{1}{2}$ millimeters; Width of pronotum, 2 millimeters; length of cephalic horn, $2\frac{1}{2}$ millimeters.

Collected in Texas by G. W. Belfrage.

4. *S. angustatus*. New sp.

More slender than either of the species described; the hemelytra almost flat above, hardly gibbous on the sides; head more or less orange-yellow, with the face, sides of protuberance, and ridges of the front brownish; cephalic horn very short and narrow, but blunt at tip; cranium with two black, impressed dots between the eyes; rostrum reaching to the end of the fourth ventral segment, yellow, black at tip, the lobes behind the eyes with a small black dot. Pronotum with an arcuated series of indented black points, the lateral margins obliquely curved toward the head; pale, grooved, and brown behind the eyes, and with the carinate edge whitish. Mesonotum varied with brown, and with a series of black, indented points across it, the tegular pieces a little confluent punctate; pleura washed with pale brown and flecked with dark brown; legs flecked with fuscous, the tibiae with two or more dark, band-like shades; hemelytra infuscated, moderately flat, the costal margin very feebly arcuated, a broad longitudinal vitta extending to the tip, a streak on the suture of the clavus, several coalescing spots running

back from the apex interiorly, and the interrupted flecks on the nervures dark brown; the costal area whitish throughout, nervures stout, the first ulnar nervure forked considerably behind the middle, and the second ulnar forked at a little distance behind the middle. Wings smoky, the nervures darker. Disk of tergum black, with the sides orange-yellow. Venter faintly brownish, flecked with yellowish.

Length from tip of head to end of hemelytra, 7 to 8 millimeters. width of pronotum, $2\frac{1}{4}$ to $2\frac{1}{2}$ millimeters. Length of cephalic horn, $1\frac{1}{2}$ millimeters.

Inhabits Nebraska, Dakota, Iowa, Massachusetts, and Connecticut.

SUBFAMILY DELPHACINA.

LIBURNIA, Stål.

L. vittatifrons. New sp.

Elongate-oval, pale green, bald, and polished. Apex of the head tumidly conical; cranium minutely, obsoletely punctate on the sides; the cranial shield triangular in front, so caused by the converging of the lateral carinæ; central carina high and thick, the lateral ones very high and divaricating anteriorly; the front oblique, depressed, banded twice with orange or rufous; the pair of central carinæ high, curving apart, abbreviated before the epistoma; the epistoma piceous or rufo-piceous at base; rostrum yellowish, piceous at tip, reaching to the tip of the intermediate coxæ. Eyes large, horizontal, subreniform, pale brown; antennæ greenish; the scapus and basal joint subequal, the former with a broad black line, the latter with two black lines and an anterior ring; second joint longer than the two former, with two black lines. Pronotum short, truncate in front, sinuate on the posterior margin, the central line and an oblique one each side carinated, the lateral edge sinuated to receive the tegulæ; tegulæ very minutely punctured. Mesosternum longer than the pronotum, with five carinated lines, the lateral ones a little curved, and the apex slightly elevated. Legs green; the femora and tibæ, excepting the posterior pair, lineated with black, and with the tips of the spines, the nails, a broad band near the tip of the anterior tibæ, and a large spot on each anterior coxa, black; hemelytra long and narrow, obliquely rounded at tip, yellowish-green, the nervures straight and wide apart, with only two or three cross-nervules near the tip; the radial nervure forked at the middle, the first and second ulnars forked near the tip. Wings white; tergum sometimes infuscated on the disks of the segments. Anus of the female armed with a long, acute stylet; both sexes with a few long bristles at the apex of the venter; hemelytra of the male with five longitudinal cells at the apex; the inferior genital segment divided into two curved, very acute, piceous hooks, and the anus with a still longer stylet than in the other sex.

Length to tip of hemelytra, 5 to $8\frac{1}{2}$ millimeters. Width of pronotum, $1\frac{1}{2}$ to 2 millimeters.

Inhabits Dakota, collected by Mr. Rothauer; Illinois, Robert Kennicott. It also occurs abundantly upon the salt-marshes of the sea-coasts of Maryland and New Jersey, living among the long, stiff grass. When fresh and not weather-beaten, it is of a vivid light green, but when old and weathered it becomes soiled yellow in color. It would be interesting to know if this species belongs to places in the West which were originally the beds of salt-lakes. The salt-marshes of Eastern Massachusetts have thus far failed to yield any specimens of it.

CIXIUS, Latr.

1. *C. stigmatus*.

Flata stigmata, Say, Journ. Acad. Phila. iv, 335, No. 3.

Cixius stigmatus, Fitch, Catal. of State Cabinet N. Y. 45, No. 1.

Inhabits Missouri, Texas, Colorado, Illinois, Michigan, Canada, and the Atlantic region generally.

2. *C. Franciscanus*.

Cixius Franciscanus, Stål, Eugenes Resa, Entom. Bidrag, 273, No. 151.

Inhabits California, near San Francisco.

ORGERIUS, Stål.

O. rhypparus.

Orgerius rhypparus, Stål, Eugenes Resa. 274, No. 154.

Inhabits California, near San Francisco.

DELPHAX, Fab.

D. tricarinata.

Delphax tricarinata, Say, Journ. Acad. Phila. iv, 337.

Inhabits Nebraska, Missouri, and Illinois.

This may perhaps belong to the genus *Liburnia*, but I have not at present any specimens at hand to enable me to determine its precise characters.

BRUCHOMORPHA, Newm.

1. *B. oculata*.

Bruchomorpha oculata, Newman, Entom. Mag. v, 399.

Inhabits Texas, Indian Territory, Colorado, Nebraska, Illinois, and the Atlantic region.

2. *B. dorsata*.

Bruchomorpha dorsata, Fitch, Third Report, 396, No. 114.

Inhabits Indian Territory and Texas.

NASO, Fitch.

N. Robertsonii.

Naso Robertsonii, Fitch, Third Report, 396, No. 115.

Inhabits Indian Territory, Illinois, and Maryland.

PHYLLOSCELIS, Germ.

P. atra.

Phylloscelis atra, Germar, Zeits. f. d. Entom. i, 192, No. 2.

Inhabits Texas, Indian Territory, Illinois, Pennsylvania, Maryland, Virginia, North Carolina, and Georgia.

ISSUS, Fab.

1. *I. auroreus*. New sp.

Form similar to *I. aciculatus*; bright yellow, saturated with clear brown. Cranium pale brownish, transverse, quadrangular, with the margins prominently elevated, the front edge indented in the center, and the lateral edge obliquely indented posteriorly, the posterior margin concave; front a little longer than wide, slightly convex, a little wider infe-

riorly, and with the sides curving inward to concur with the margin of the epistoma, the lateral margins dotted with fuscous; on the disk are a few fuscous flecks; the central carina feeble, almost obsolete beneath; sides of the face smooth, yellow; epistoma shorter than the front, prominently convex and ridged, the middle line thick, pale yellow, each side of it obliquely striated with brown; antennæ fuscous; rostrum reaching to the posterior coxæ, ochreous, piceous at tip; pronotum longer than the cranium, ochreous, dotted with brown, on the middle with two indented points, the anterior margin broadly arcuated to fit the cranium, the posterior margin truncated; mesonotum pale yellow, with a blunt thick carina on the middle, the surface depressed each side, and the apex a little tumid; pleural pieces pale yellow, the anterior ones margined and spotted above with fuscous or pale brown; legs piceous at base of femora, and some patches, particularly on the forward surface, and the outer face of tibiæ pale testaceous; tips of the spines and the nails piceous-black; hemelytra short and broad, clear wine-brown, pale orange on the costal areole, the nervules of this part obsolete, apex bluntly rounded, base narrower than the width beyond the middle, the surface coarsely and irregularly scabrous, longitudinal nervures parallel, distinct, a few areoles present near the apex, and these irregular, reticulated, and indistinct; abdomen greenish-yellow, more or less saturated with rosy-orange; the genital segments fuscous, with the hooks rufopiceous.

Length to tip of hemelytra, 5 millimeters. Width of pronotum, $1\frac{1}{2}$ millimeters.

Inhabits Texas; collected by G. W. Belfrage.

2. *I. aciculatus*. New. sp.

Short, robust, grayish testaceous, minutely punctate with fuscous; upper side of head about as long as the pronotum, transverse, quadrangular, ochreous, concave, each side with an arcuated fuscous line, and some fuscous points and specks, the anterior margin a little elevated, scooped out in the center, the posterior margin prominently carinate, broadly sinuate; front a little longer than broad, pale ochreous, irregularly punctate, a transverse band above, a geminate spot below, and numerous dots, more or less aggregated near the outer margins, fuscous, the lateral margin carinate, arcuated; central carina percurrent to the base of rostrum, pale, the carinæ each side not much elevated, the inferior margin triangular; epistoma shorter than the front, moderately convex, obliquely striated with fuscous, and infuscated inferiorly; antennæ infuscated; rostrum reaching behind the posterior coxæ; pronotum ochreous, regularly and remotely dotted with fuscous, the anterior margin broadly arcuated, and the posterior margin straight; propleura fuscous, but with the base and margin ochreous, remotely dotted with fuscous, and with some fuscous traces on the middle, the middle line sulcated; meso- and meta-pleura ochreous and white; legs pale ochreous, three bands on the femora, the exterior surface of the tibiæ somewhat, the spines and tarsal joints infuscated; the femoral grooves and tibial carinæ well defined; hemelytra short, broad, dotted with fuscous, narrower at base, the apex obliquely rounded; nervures stout, wide apart, pale, margined with fuscous; the areoles from behind the middle to the tip large, trapezoidal, or irregularly quadrangular, forming about five series; the inner and outer submargins and the disk a little washed with fuscous and pale testaceous; the genital pieces fuscous beneath.

Length to tip of hemelytra, 5 millimeters. Width of pronotum, 2 millimeters.

Inhabits Orange Springs, Florida, collected in June by Miss Modeste Hunter; also Texas, G. W. Belfrage.

This species closely resembles *Issusimmaculatus*, Fab.; but the shape of the front and its carinate lines will at once mark its distinctness.

TYLANA, Stål.

1. *T. ustulata*. New sp.

Resembles *T. conspersa*, Walker, but having the nervures much coarser and densely reticulated near the apex; short and robust; color pale or bright ochreous yellow, clouded with fuscous. Head ochreous, smooth, obsolete rugulose, the cranium deeply scooped out, much wider than long, bounded each by high ridges, which are much elevated before and behind the eyes, and marked with large black spots; the middle indented, yellow, each side of it are two broad, irregularly arcuated, black spots, the lateral edge interruptedly piceous; posterior margin concave, yellow; anterior margin concave, piceous, indented in the middle, slenderly carinate; front minutely punctate, the middle longitudinally elevated, and with the central line slenderly carinated, each side of it longitudinally, broadly grooved and carinated, the carinæ abbreviated, slightly curving inward at the ends; the surface irregularly mottled with piceous, the upper angles entirely piceous, and below the line of the eyes is a broad piceous band, which continues along the sides and across the propleura upon the tegulæ; eyes pale brownish, the piece behind them yellow, with two piceous spots; epistoma piceous beneath, the central carina prominent, blunt, each side of it somewhat ribbed with piceous; rostrum piceous, pubescent, reaching beyond the middle coxæ. Pronotum about one-third as long as its width, dark ochreous, dotted with piceous and yellow, the middle scooped out, minutely scabrous, infuscated, with a fuscous band posteriorly, on which are two indented points, and the anterior submargin fuscous; mesonotum about half as long as its width, pale, rufo-piceous, more or less yellow each side of the central shield, and with the middle line slender and yellow, the shield minutely scabrous, impressed around the submargins and behind, the margins carinated; lateral angles infuscated, a little interiorly is a short, blunt carina, and the surface next to the shield depressed. Anterior pleural pieces broadly black above, and a little so beneath; the sternum yellow. Legs piceous, more or less yellow at base; femora banded thrice with ochreous, the tibiæ with two ochreous spots on the outer edge; tarsi and the spines and nails piceous. Hemelytra ochreous, clouded with fuscous, and with minute fuscous points; the nervures very thick and prominent, blackish piceous, interrupted with ochreous at base and on the disk, and with an ochreous dot at the tip of each cross-vein on the costa and tip; nervures from the middle to apex forming a close net-work of mostly pentagonal areoles. Tergum marked transversely with piceous; venter dotted and spotted with piceous and black, remotely pubescent.

Length to tip of hemelytra, 7 millimeters. Width of pronotum, 2¾ millimeters.

Inhabits Colorado and Arizona.

The hemelytra are wider at tip than at base; the costal area is wide; the cross-nervules of the base slender, less conspicuous than the others, and generally testaceous; and the costal margin is angularly produced before the middle, as usual in this group.

2. *T. ustulipunctata*. New sp.

Form similar to that of *T. elliptica*, Germar, but a little more slender; color clear brunnescens, with the longitudinal veins wide apart, straight, curving down at tips, with only a few cross-veins, and those chiefly near the tip. Head ochreous, subquadrate, a little transverse, tinged with fuscous, the lateral and posterior edges prominently carinate, pale yellowish, roundedly emarginated on the posterior margin, and angularly produced on the anterior margin; front subquadrate, much longer than broad, a little arcuately dilated, the lower angles bent inward; superior angles subrectangular; disk with an oval ochreous spot, the surrounding surface fuscous, dotted with pale yellow; middle carina high superiorly, the lateral carinate edges prominent, pale; cheeks pale ochreous; epistoma shorter than the front, acutely triangular, ochreous, infuscated on the disk, excepting the middle line; rostrum reaching to the posterior coxæ, the tip piceous. Pronotum short, pale ochreous, a little infuscated, the center with two impressed points, and the sides with a few pale granules, the anterior margin acutely triangular, the posterior margin truncated; mesonotum longer, embrowned on the disk, striped with yellow on the sides; pleural pieces ochreous; brownish on the disks, the anterior piece with a large round black spot behind the eyes; metasternum greenish-white. Legs dull ochreous, the spines and tarsi more or less piceous, anterior and middle coxæ bright crimson. Hemelytra a little flattened, long, and much narrowed posteriorly, the apex obliquely truncated; surface with short, golden pubescence; three round black spots behind the base arranged in a triangle, and near the tip three others similarly arranged; costal areole with several piceous irregular spots, the transverse veins indistinct, pale, but extending along its whole length; wings a little embrowned, the nervures darker. Venter and tergum pale ochreous, banded with brown, the margins of the segments yellowish-white, the sides of genital segments striped with fuscous.

Length to tip of hemelytra, 8 millimeters. Width of pronotum, 3 millimeters.

Inhabits Cuba (Professor Poey and Charles Wright) and Mexico.

It resembles *T. elliptica*, Germar, but has a longer front, and lacks the carinæ, which bound a central disk in that species.

DICTYONISSUS. New gen.

Aspect of *Mycterodus*; the upper surface hispid. Vertex subquadrate, deeply scooped out, a little wider than long, prominent, the anterior angles rectangular, and with the bounding carinate lines high, the anterior margin arched in the center; front longer than wide, the sides convexly curved, the middle line carinated from the tip for about two-thirds of the length downward. Pronotum acutely triangularly narrowed anteriorly, and carried forward almost to the front line of the eyes, and deeply emarginated behind; mesonotum as long as the head and pronotum united, with the apex of the scutellum broad and bluntly rounded. Tibiæ grooved on the outer face, the posterior pair having three small teeth, exclusive of the apical one. Hemelytra long and narrow, vitreous, hispid, regularly parabolic on the costal margin, from the base to the inner apical angle, the inner margin straight; the whole surface filled with net-work of large rounded areoles composed of very coarse nervures, arranged somewhat longitudinally, but obliterating the usual series of longitudinal nervures; the costal area obliterated, excepting only at the base.

D. griphus. New sp.

Pale green, moderately long and narrow, hispid above, pubescent beneath. Head with a few coarse wrinkles on the fore part of the vertex, the anterior edge acute, interruptedly margined with fuscous; front longer than the epistoma, the lateral margins curving to conform to its outline, submargin each side with a longitudinal curved series of minute black points; epistoma transversely convex, narrow, the rostrum reaching to the posterior coxæ. Seta of antennæ black. Pronotum short, angularly lunate; anterior margin subtruncate, lateral margins greatly recurved, the sides deeply excavated to admit the eyes, middle line distinctly elevated; mesonotum very minutely scabrous, feebly carinate along the middle, the lateral carinæ almost straight. Spines of the tibiæ and tarsi tipped with piceous. Hemelytra long and narrow, strongly deflected, the nervures very thick and forming about six series of rounded areoles, the clavus with two series of areoles, but with a single series of three areoles at base. Abdomen fringed with short, stiff pubescence.

Length to tip of hemelytra, $4\frac{1}{2}$ millimeters. Width of pronotum, $1\frac{1}{4}$ millimeters.

Inhabits Texas; collected near Waco by G. W. Belfrage.

This interesting little species presents a new facies in the group as represented in North America. The obliteration of the longitudinal nervures of the hemelytra and the rounded form of the areoles signalize it at once.

NEÆTHUS, Stål.

N. vitripennis.

Hysteropterum vitripenne, Stål. Öfvers. Kong. Vet. Akad. Forhandl. 1854, 247; and Eugenies Resa, 279, No. 171.

Inhabits California near San Francisco, and Arizona.

APHELONEMA. New gen.

Elongated, the sides almost parallel; head large, including the eyes a little wider than the base of the closed hemelytra; vertex very short, sublunate, with the anterior margin strongly carinate; front rounded, prominent, the central plate almost circular, flattened, and very much raised above the surrounding area; exterior margin strongly carinate, curved conformably with the margin of the central plate, the upper margin subtruncate, carinate, the middle line carinate, and continued to the tip of epistoma; epistoma prominently ridged, the inferior cheeks wide, impressed on the inner angle, the superior cheeks wide, scooped out. Pronotum longer than the vertex, lunate, bluntly curved on the anterior margin, the posterior margin deeply sinuated. Tibiæ slender, sulcate on the outer face almost to the tip. Hemelytra long and narrow, a little obliquely rounded at tip, the costal and sutural margins almost straight and parallel, the longitudinal nervures very straight, connected near the tip by a few cross-nervules, which form a transverse series of three large and one or two small, many-sided areoles, next after which is an apical series of four or five triangular areas; the costal areole with three slender cross-nervules near the tip.

A. simplex. New sp.

Pale ochreous; hemelytra faintly yellowish translucent. Vertex lunately hollowed out, the base slenderly carinate, the anterior margin bounded by a stout carina; front bright ochreous, densely minutely scabrous, the space between the central plate and the outer carinate

margin depressed, brown, spotted with yellow; epistoma very acutely triangular, brown, the margins and middle carina yellow; rostrum reaching to the middle coxæ, the superior cheeks a little brown. Pronotum shorter than the central plate of the front, a little embrowned, covered with coarse punctures set into annular orbits, the anterior margin slightly carinated, feebly waved each side of the middle; mesonotum pale brown, almost smooth on the disk, and on each side densely packed with prominent papillæ having punctured centers; pectus pale yellow, with the disks of some of the superior pieces brownish. Legs pale yellow, the femora and coxæ a little washed with brown, the tips of the spines piceous. Hemelytra pale yellowish translucent, a little dusky at tip, the nervures clearer yellow, stout, with about two series of large, irregular areoles at tip, and with three costal cross-veins behind the tip; wings yellowish, with very slender nervules. Abdomen dark brown, the segments margined behind and on each side with ochreous; the tergum in one specimen having yellow dots with ochreous centers. Length to tip of hemelytra, 4 millimeters. Width of pronotum, $1\frac{1}{2}$ millimeters.

Inhabits Dakota. Collected by Mr. Rothauer.

FAMILY TETTIGONIDÆ.

PROCONIA, St. Farg. & Serv.

P. costalis.

Tettigonia costalis, Fab., Ent. Syst. suppl. 516, Nos. 22-23; Signoret, Ann. Soc.

Ent. France, 3d ser. ii, 359, pl. 12, fig. 8; Fab., Syst. Rhyng. 39, No. 34.

Cercopis marginella, Fab., Syst. Rhyng. 96, No. 44.

Cercopis lateralis, Fab., Ent. Syst. suppl. 524, No. 24; Coquebert, Illustr. i, 35, tab. 9, fig. 3.

Tettigonia lugens, Walker, British Mus. Cat. Homopt. iii, 775, No. 108.

Tettigonia pyrrhotelus, Walker, l. c. iii, 775, No. 109.

Inhabits the Atlantic region from Canada to Florida, and in the West it occurs in Washington Territory, Oregon, British Columbia, Colorado, Arizona, and California. It occurs also in Mexico, Texas, and Central America.

A variety from the Southern States is black, and there is some variation noticeable in the depth and intensity of the red ground-color and in the yellow-lateral stripe.

AULACIZES, Amyot & Serv.

A. irrorata.

Cicada irrorata, Fab., Ent. Syst. iv, 33, No. 24; Syst. Rhyng. 62, No. 6; Coquebert, Illustr. i, 32, tab. 8, fig. 4.

Tettigonia irrorata, Signoret, Ann. Soc. Ent. France, ser. 3, iii, 59, pl. 6, fig. 14.

Inhabits Texas, Georgia, Florida, Louisiana, Arkansas, Maryland, Pennsylvania, and New Jersey.

DIEDROCEPHALA, Spin.

1. *D. coccinea.*

Cicada coccinea, Forster, Nov. Species Insect. 69.

Tettigonia quadrivittata, Say, Journ. Acad. Phila. vi, 312, No. 3.

Proconia quadrivittata, Fitch, Catal. of Ins. of N. Y. State Cabinet, 55.

Inhabits Texas, Indian Territory, the States east of the Mississippi River, Canada, &c.

It varies much in size and color; some specimens being even almost

entirely red above. Blackberry-bushes and low shrubs are its favorite resorts, on which it may often be seen in considerable numbers during the summer.

2. *D. noveboracensis*.

Aulacizes noveboracensis, Fitch, l. c. 56, No. 2.

Inhabits the vicinity of East River, Colorado, August 29.

Collected by Lieutenant Carpenter. It is common in many parts of the United States north of Maryland, and it extends far north in Canada and British Columbia.

3. *D. mollipes*.

Tettigonia mollipes, Say, Journ. Acad. Phila. vi, 312, No. 4.

Aulacizes mollipes, Fitch, l. c. 56, No. 1.

Inhabits Texas, Colorado, Mexico, and the southern part of the Atlantic region.

TETTIGONIA, Geoff.

T. hieroglyphica.

Tettigonia hieroglyphica, Say, Journ. Acad. Phila. vi, 313, No. 6.

Inhabits Texas, foot-hills and plains of Colorado) from August to October (Lieutenant Carpenter), and the Atlantic region throughout.

GYPONA, Germ.

G. octolineata.

Tettigonia octolineata, Say, Journ. Acad. Phila. iv, 340, No. 1.

Inhabits foot-hills and plains of Colorado. Collected by Lieutenant Carpenter. Also common in most parts of the Atlantic region.

SUBFAMILY JASSINA.

COCHLORHINUS. New gen.

Form similar to that of *Rhaphirhinus*. Head long triangular, produced forward into a long tapering ligula, with the surface depressed, the margins elevated, and the apex rounded. Superior cheeks subulate, inferior ones oval, acute at both ends; front tapering superiorly and subcylindrical, subconical inferiorly, its tip much wider than the ligulate labrum. Ocelli situated on the margin in the suture between the vertex and front. Eyes placed obliquely, bordering the pronotum by most of their base, concave beneath, and bounded there by a deep suture. Second joint of the antennæ a little longer than the basal one. Pronotum short, the anterior margin arcuated, the posterior margin concave; posterior angles broadly rounded, the anterior ones almost rectangular. Hemelytra of the female about the same length as the abdomen, coarsely scabrous; behind the middle is a thick anastomosis, sending off stout branches on the costal and four longitudinal nervures; behind this are four long areoles, and beyond these are four short and wider ones arranged around the apex; the apex rounded, obliquely slanting toward the inner angle. Basal joint of the hind tarsi fully as long as the two others united.

C. pluto. New sp.

Form of *Tettigonia brevis*, Walker, but shorter, deep black, scabrous, highly polished. Head produced into a spoon-shaped tip, round at the

apex, with the margins elevated and the submarginal surface depressed, the tylus carinately elevated, reaching to the tip; front crossed by a broad yellowish band; base of rostrum pale piceous, the vertex with a broad rounded impression each side, and the occiput with a small depressed dot each side. Pronotum polished, transversely wrinkled, with an arcuated, transverse impressed line behind the anterior margin, and with about three indented points behind each eye. Scutellum dull black, very minutely rastrated, obsolete, minutely punctured postero-exteriorly. Tibiæ, tarsi, apex of femora, and tips of the coxæ yellowish. Hemelytra shining black, coarsely scabrous, transversely wrinkled, the anastomosis behind the middle of the corium and a point at the tip of the clavus white. Abdomen black.

Length, 6 millimeters. Breadth of pronotum, $1\frac{2}{3}$ millimeters.

Inhabits California. Received from James Behrens.

This species mimics the Tettigonias of the group of *T. brevis* so closely that it might readily be mistaken for one of them; but on close inspection, the position of the ocelli and the arrangement of the apical cells of the hemelytra will show its affinities to be with the *Jassina*.

Only females have thus far been inspected.

This is another of the striking instances of parallelism which occur in the *Hemiptera* in forms belonging to families whose affinities may be otherwise remote.

BYTHOSCOPIUS, Germar.

1. *B. pallidus*.

Idiocerus pallidus, Fitch, Catalogue N. Y. State Cabinet, 59, No. 5.

Inhabits the mountains of Colorado in June. Collected by Lieutenant Carpenter. In New York, this species affects the willows and poplars.

2. *B. siccifolius*. New sp.

Dull straw-yellow, short, robust. Head very minutely punctured, and transversely wrinkled; vertex with two median longitudinal approximate brown lines each side, with a black round dot, and against each eye is a brown subtriangular spot, which sends forth a short line to the ocellus, and lower down another slender line running to the front; the front bounded by a brown, slender line, and each side with a series of brown, short lines placed somewhat obliquely; sutures of the face brown; the middle line of the labrum and rostrum dark brown. Pronotum minutely, transversely wrinkled, with an arcuated series of indented, short, brown lines and points behind the anterior submargin, middle with two brown, approximate lines, each side of which is a less distinct line, and nearer the exterior margin a deeper, brown, curved line; anterior margin broadly rounded, the posterior margin truncated. Scutellum transversely wrinkled, with a slender, impressed line crossing the middle and connecting with a submarginal similar line each side, the disk with a large dark brown spot, and a smaller one each side of base, the lateral margins pale yellow. Legs straw-yellow, femora with two brown bands, the anterior and middle tibiæ brown beneath, but with a yellow band on the middle, and with the upper side a little clouded with brown; posterior tibiæ with small brown dots at the base of the spines. Hemelytra yellowish-hyaline, the thick streaks at base, the sutural and interior margins whitish, the sutures dark brown, as also the interneural lines and inner submargin of the clavus, the nervures paler brown; apical areoles four in number, three ante-apicals, of which the inner one is shortest and the middle one much the longest. Tergum black, with

the margins and sides of the segments pale yellow; venter less widely spread with black.

Length to tip of abdomen, 3 millimeters. Width of pronotum, 1 millimeter.

Inhabits the summits of high mountains in Colorado. Collected by Lieutenant Carpenter, July 19 to September 6. Also, at Eagle River, Colorado, in August, and at Denver in June.

This is a very variable little insect, which is not confined to the region of the Rocky Mountains, but which has been found likewise in Texas, in British Columbia, Canada, and New England.

JASSUS, Germar.

J. lactus. New sp. auctor.

Greenish-yellow, moderately long and slender. Head sublunate, a little peaked at the tip of vertex, the central line incised and a little impressed on the middle, each side of this with a short, oblique impression, a large black dot occupies each side of the middle, and two minute fuscous ones are at the tip; face pale, marked with black dots against the eyes, and with two black, arcuated lines superiorly, placed on each side of the middle; front faintly striated with brown each side and above, the sutures, and sockets of the antennæ also black. Pronotum larger than the head, arcuated in front, slightly sinuated on the posterior margin, minutely wrinkled, transversely impressed on the middle behind the anterior margin, and with an impressed dot exterior to this; an impressed, oblique line placed still nearer to the lateral margin. Scutellum depressed on the middle, with an arcuated, impressed, short line each side, and a very slender, incised line behind the middle; the base with a black dot each side, extending partly beneath the pronotum. Legs yellow, the beds of the spines, the nails, and the tips of tarsal joints piceous black. Hemelytra yellowish-hyaline, the costal margin broadly thickened, minutely scabrous; nervures thick and very distinct, the areoles long and narrow, the outer one at apex shortest, composed of a short triangle at base and a longer one at tip. Tergum black at base and beyond, omitting the sides and three last segments; venter greenish-yellow, the basal incisure, a spot upon the second segment, the ovipositor, and the impressed inner angles of the connexivum black.

Length, 4 millimeters. Width of pronotum, $1\frac{1}{4}$ millimeters.

Collected by Lieutenant Carpenter in the high mountains of Colorado, from June 19 to September 6.

Some specimens have the black of the face, the pleura, and the abdomen more widely extended, and causing them to have a blackish appearance.

DELTOCEPHALUS, Burm.

D. debilis. New sp.

Bright grass-green, short and stout. Head, forepart of pronotum, and the scutellum whitish-green. The head triangular, longer than the pronotum, with the sides a little arcuated, the tip a little curved upward; cranium depressed, the median line incised; each side at base with a short impressed line; eyes continuous with the lateral line of the head, margining the pronotum almost to its base; front stained with black above and on each side, and in which are indications of striated lines; cheeks almost as wide as the eyes, black at base, the tip of labrum piceous, and the antennæ infuscated at base. Pronotum lunate, the surface a little wrinkled transversely, with a few indented points each

side and in front. Pleura blackish, margined with pale greenish. Legs yellowish, the base and tips of tarsi and the beds of the spines blackish. Scutellum a little depressed in the middle, feebly wrinkled, the lateral margin slightly elevated. Hemelytra green, paler at tip, obsolete punctured next the nervures, the nervures stout and rather straight; four short apical cells and one costal cell, the discoidal one long and wider than either of the others. Tergum black, more or less margined with pale green, the three apical segments also pale green; venter pale green, stained with black, particularly on the disks of the segments and on the genital valves.

Length to tip of venter, $3\frac{1}{2}$ millimeters. Width of pronotum, $\frac{3}{4}$ millimeter.

Inhabits Colorado, on the sides of the high mountains, and near Fair Play, in South Park, July (Lieutenant Carpenter.)

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